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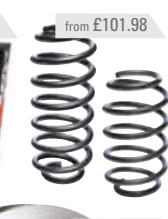


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- Focus RS Mk2 (Front) **£660.18**



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TAROX	£196.26	£202.80	£294.00	£114.00	£294.00	£114.00	£222.00	£90.00	£190.80	£85.00
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Suspension	Spring Kits	Coilovers	Spring Kits	Coilovers	Spring Kits	Coilovers	Spring Kits	Coilovers	Spring Kits	Coilovers
KW	-	£1,052.00	-	£1,008.00	-	£1,050.00	-	£750.00	-	£750.00
ST	£165.00	£645.00	£165.00	£645.00	£165.00	£645.00	£135.00	£545.00	£135.00	£545.00
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MILLTEK	£682.54		£498.98		£675.72		£356.76		£448.01	
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MONGOOSE	£480.37		£456.29		COMING SOON		£361.54		£463.06	
Engine Bay										
SAMCO Hose Kit	£137.22		£202.15		COMING SOON		£75.54		COMING SOON	
SUPERCHIPS Bluefin	£399.00		£399.00		£399.00		£249.00		£399.00	
FORGE Recirculation dump valve	£131.64		£150.82		£138.23		-		£209.24	

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FIRST WORDS



PERFORMANCE
FORD
NOVEMBER 2015 #262

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Well, what a month that's
been. Still, it's all been
worth it to bring you
another jam-packed issue
of your favourite Ford-
filled magazine which, this month,
truly does have something for
everyone.

First of all, we've got the Focus RS
on the cover. There seems to be
something in the Scottish blood when
it comes to nailing an RS together, and
this one is no exception. With big
power, it's ready to take on any
challenger, but with nothing more
than wheels and brakes to give the
game away, it's also taken down a few
hopefuls! This is our kind of build -
considered, stealthy and executed to
utter perfection. Read more about it
on page 14.

What else do we have? Well, there's
a Sierra that, while suffering a
turbulent build, is now rocking power
from Japan. There's a Mk3 Escort

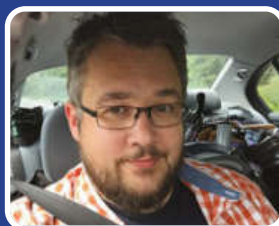
estate that's been subjected to
stunning levels of detail during an
extensive rebuild, and of course it has
more power, too. We've got a new
feature for the cars of Instagram and
this month we look at a killer Stateside
Mustang on air. Oh, and we've also got
a full-on report from the ever-popular
Rally Day at Castle Combe.

We've not scrimped on tech stuff
either, in fact, we have a new feature
for you. Ever wondered what goes
into making a car a master of a certain
motorsport discipline? Yeah, us too!
That's why we've created a new series
- Road 2 Race - that looks at this,
opening with a World Rally car.

We've got all our regulars, too,
including the ever-expanding PF
fleet, your cars, Facebook questions
and more, so grab a
brew, get comfy and
read on!

Chris

IF YOU COULD DRIVE A FORD FROM A MOVIE, WHAT WOULD IT BE?



**CHRIS POLLITT
EDITOR**

Duh, it would have to be,
the Mustang from Bullitt.



**JOE EVERLEY
DESIGN MANAGER**

Obviously, the '84 Econoline
in full 'Mutt Cutts' livery
from Dumb & Dumber.



**JAMES 'DELTA' BALL
EDITORIAL WHIZZKID**

The Transit Connect from The
Muppets Movie. I hope the
editor doesn't read this...

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WINNING FORMULA

The lucky winner of our Formula 4 VIP competition, Mike Dean, enjoyed his time at the 23 Racing garage!

With exclusive access to the 23 Racing garage at Donington Park, Mike got to experience the thrill of an F4 race and rub shoulders with the whole team.



FIGURES IN FOCUS

This month we finally got some concrete figures for the upcoming RS.

The all-new Focus RS will sprint from 0-62mph in 4.7 seconds, making the high-performance hatchback the fastest accelerating RS model ever.

The Focus RS will reach a top speed of 165mph powered by a specially engineered version of Ford's new 2.3-litre EcoBoost engine delivering an incredible maximum power output of 345bhp. Ford also announced that the Focus RS is now available to order with prices from £28,940.

The all-new Focus RS optimises acceleration by introducing Launch Control technology to a Ford RS model for the first

time. The model also debuts new Ford Performance All-Wheel Drive with Dynamic Torque Vectoring, for outstanding traction and grip with unmatched agility and cornering speed.

"The all-new Focus RS delivers stunning performance and innovative technology at a price that will make both our customers and premium automakers look twice," said Jürgen Gagstatter, chief program engineer for Focus RS. "After experiencing the acceleration and cornering capability of the Focus RS, drivers will question the sense in spending almost £10,000 more on a premium competitor."

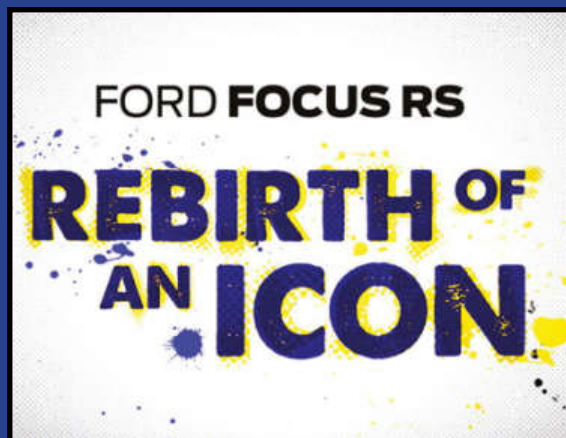
HOW IT'S MADE: THE RS

From the searing heat of Arizona to the icy wastes of the Arctic, from design studio to the crash lab, Ford Motor Company is revealing the behind-the-scenes story of the all-new Focus RS.

"Rebirth of an icon" shows the development of the latest generation of an automotive icon through a "warts and all" video documentary series covering every stage of the vehicle's evolution.

The inside story of the all-new Focus RS pulls no punches – following the car across the world as Ford Performance engineers and drivers put it to the test under the scrutiny of RS consultant and Gymkhana superstar Ken Block and Ford's group vice president for Global Product Development and chief technical officer, Raj Nair.

Eight weekly episodes (which are being released as we write) will be well worth watching! Check out Ford Performance on YouTube to watch now.



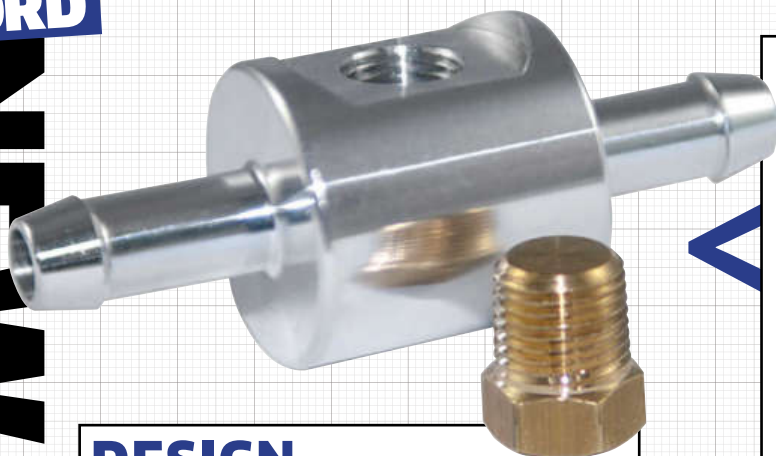
GT DEBUTS IN GB

Ford's all-new GT race car – revealed at Le Mans in June – will make its European racing debut at the Silverstone Circuit in the U.K. next April.

Two cars will line up on the grid for the opening round of the 2016 FIA World Endurance Championship (WEC) where they will compete in the GT-Endurance Pro Class for the Royal Automobile Club Tourist Trophy.

The event is the first of nine WEC rounds announced by the FIA for 2016. Ford will later make its historic return to the Le Mans circuit in France where, 50 years ago, Ford's GT40 won the first of four consecutive Le Mans titles.





WEBCON 8MM GAUGE ADAPTOR

If you need to check the fuel pressure on your carburettor, or EFI system, and do not have a suitable gauge take off, then this Webcon Gauge Adaptor might do the trick. This new universal pressure gauge adaptor fits quickly and easily into the fuel line thus allowing a carburettor or EFI pressure gauge to be fitted.

The adaptor is manufactured from billet aluminium and supplied with a brass plug so that the gauge can be removed after checking. Its thread size is 1/8 NPT and unions are 8mm. This could be a good solution for some!

Cost: From £11.25 plus VAT
Contact: www.webcon.co.uk

DESIGN ENGINEERING INC. QUICK-FIX TAPE

Don't get caught out this winter - check your on-board tool kit now before the bad weather sets in. One product that might be a good addition is Quick Fix Tape from Design Engineering Inc.

Quick Fix bonds to itself and then self-cures, forming a waterproof permanent seal. It's ideal for emergency hose repair, electrical splices and connections. It serves as a temporary leak sealer, and does not leave a sticky residue after removal. It's also handy for making a non-slip grip surface for tools. That's only a few of its many uses.

It is made from industrial-grade silicone and has been tested to withstand 700psi on a hose repair; it has insulating capabilities up to 8,000 volts and stretches to three times its length for a simple stretch-and-wrap application. Its clever triangular profile (the centre is thicker than the edges) provides a smooth edge when overlapping tape.

The tape withstands temperatures from -54 degrees C to +260 degrees C, is waterproof, can be applied to wet surfaces, resists solvents, oils, fuel, acids and chemical spills. It is corrosion and moisture-resistant and forms a permanent air and liquid tight seal once cured.

Cost: Check website
Contact: www.designengineering.com/storelocator/international-dealers



EURAX - RUSTYCO RUST REMOVER

Eurax Ltd is now stocking Rustyco rust remover products from Holland. Note that this is rust 'remover', not rust 'treatment'. It doesn't convert rust into something else; it removes it - and is described as leaving a microscopically clean surface that is ready to accept paint or other finishing.

It's available in two forms: Rustyco Dip and Rustyco Gel. The Dip is for submerging smaller items, and the Gel is for bigger stuff. Essentially the process is the same - wait until the rust has disappeared then simply wash and wipe.

The Rustyco solution is also non-toxic, not flammable and environmentally friendly. It is harmless to varnish, plastic, glass, rubber, chrome and most other surfaces that it is likely to come into contact with.

Cost: Dip starts at £24.99 and Gel from £39.99 including VAT
Contact: www.euraxltd.co.uk



BURTON'S ODYSSEY SEALED BATTERIES

Batteries are heavy, right? Well, now you can shed some weight and free up some space under the bonnet, or relocate your battery to the boot for improved weight balance, with an Odyssey Race Battery by Burton's.

Burton Power now offers these fully sealed, spill-proof batteries in several sizes, weights and power outputs from 14amp/5kg up to 38amp/12.5kg. The batteries are fully sealed and can be safely mounted in the boot, under the rear seat or even laying on their side. They are considerably smaller than conventional batteries although they deliver much more power for their size. They also last significantly longer than conventional batteries - typically three times as long - and can be fully recharged in just 4-6 hours! Pretty cool, eh?

Cost:

BATVAR15 - 14amp, 5kg, 400A cranking current	£152.50
BATVAR30 - 26amp, 9kg, 685A cranking current	£168.00
BATVAR40 - 37amp, 12.5kg, 965A cranking current	£189.95

All prices inc VAT. Discounts are available if purchased on-line from the Burton Power website.

Contact: www.burtonpower.com



MOMO WIN-2 'WINTER SEASON' ALLOY RIM

In Germany as well as some other countries it's a legal requirement to fit winter tyres - and it's not a bad idea for our fickle climate either! Now you can also have style all through the winter, too, because Momo has released a range of alloy wheels specially designed for the winter season (although there's no reason why you shouldn't run them in summer, too).

The MOMO Win-2 features a 10-spoke design with broad, flat spokes and a slightly dished centre section for easy cleaning and to help car wash brushes reach as much of the wheel as possible. It's available in a durable Gloss Silver finish from 14" to 17" and 4- or 5-stud fitment.

Cost: All prices inc VAT

14" x 5.5" - each £97.99

15" x 6.5" - each £118.99

16" x 6.5" - each £135.00

17" x 7" - each £150.00

Contact: www.momo-uk.co.uk



POWERFLEX HANDLING PACKS

Powerflex Handling Packs contain all the Powerflex bushes required to uprate the suspension of your car in one handy package. The components of each kit have been selected for optimum performance based on years of experience gathered by Powerflex and offer a price saving over buying the parts individually.

There are 27 handling kits available at present covering some of the more popular models, with more kits planned for future introduction. The range covers Ford Focus Mk1/2/3 plus ST and RS, Fiesta 6 ST, Fiesta 7 ST and Focus Mk2 ST. A full list can be found on the Powerflex website.

Cost: From £111.94 inc VAT

Contact: www.superflex.co.uk



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WHAT'S ON



12-15TH NOVEMBER 2015

WALES RALLY GB

The final round of the FIA World Rally Championship is not one to be missed! Wales Rally is shaping up to be a great event, and one that will honour Colin McRae.

It will be exactly two decades previously that on Wednesday 22 November the legendary Scot won Britain's concluding round of the 1995 FIA World Rally Championship – then the Network Q RAC Rally – to make motor sport history. It's an historic milestone that will be honoured with a number of special displays and parades at the 2015 event. Tickets start at £27 for a Friday pass, and £101 for four-day access, head to www.walesrallygb.com for more information.

WIN TICKETS TO WALES RALLY GB

All the stand-out excitement and drama of top class World Championship motor sport is roaring back into north Wales in November – and here's your chance to experience the spectacular, high-flying, sideways action.



Wales Rally GB (12-15 November) is the final round of this year's globetrotting FIA World Rally Championship. Welsh hero Elfyn Evans and Northern Irish star Kris Meeke are among the front runners and both will be challenging for a famous home win. Indeed Meeke has already rewritten the record books by winning this season.

We are giving away two pairs of adult tickets to Saturday's family-friendly RallyFest stage at Chirk Castle with easy access off the A5.

The hugely popular RallyFest at Chirk Castle not only allows you to watch the world's best drivers in thrilling action, it also provides entertainment and facilities for all ages including air displays, special parades and big screens to watch all the action.

Access to the Ceremonial Start at Mostyn Street in Llandudno and the Ceremonial Finish located in the central Service Park in Deeside are all FREE. Advance tickets for the Chirk Castle RallyFest stage – as well as tickets for the more traditional rally stages in the legendary Welsh forests – are now on sale via the official WalesRallyGB.com website. What's more there are big discounts for those who book now!

To win tickets to the action-packed Wales Rally GB RallyFest at Chirk Castle simply answer the question below.

WHAT NATIONALITY IS RALLY STAR ELFYN EVANS?

1. English 2. Welsh 3. Irish

Send your answers to walesrally@performancefordmag.com



13-15TH NOVEMBER

CLASSIC CAR SHOW

If rally isn't really your scene, then the Classic Car Show at the NEC is a great place to get your fill of everything classic Ford. It's always a good show, but this year looks to be stepping up the game once again. Alongside all the usual gorgeous cars, we will be treated to a few celeb appearances in the way of 'For The Love of Cars' workshop ace Ant Anstead and 'Car SOS' presenter Fuzz Townshend.

Tickets are £20 and available at www.necclassicmotorshow.com



14-17 JANUARY

AUTOSPORT INTERNATIONAL

Moving into 2016, the first big show to kick off the year is Autosport International. The last event was probably the best Autosport to date, especially with Petter Solberg doing some crazy stunts – we've got good news, he's back!

The two-time FIA World Champion is set to thrill the crowds in the Live Action Arena. We're told that Solberg will be going even bigger and better than last year's stunts! Inside the 5,000-seater arena, often just centimetres from the barriers, Petter will give fans the chance to witness a masterclass in precision car control and tyre-smoking drifts. We can't wait!

MAKE YOUR RS AN
OBJECT OF DESIRE

Stage 8 proven 552hp
Nurburgring BTG
7 mins 57 secs

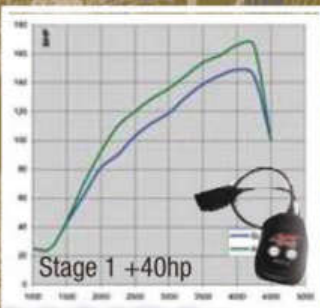
FOCUS RS MK2

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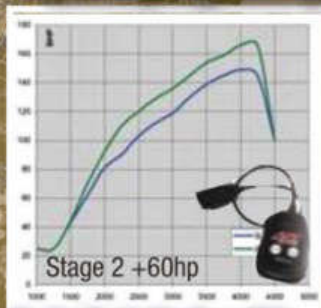
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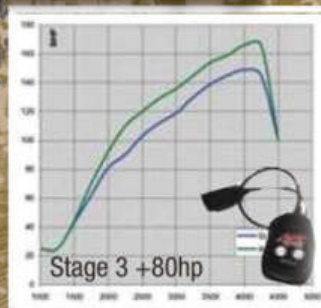
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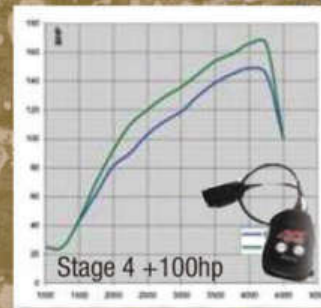
Requires Handset & software



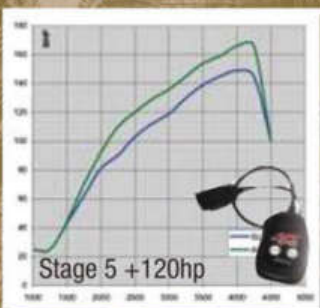
Requires Handset & software, Turbo back exhaust, Intercooler



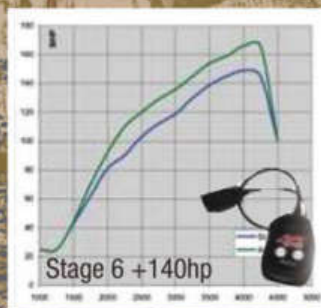
Requires Handset & software, Turbo back exhaust, Intercooler, 550cc injectors, Intake Kit



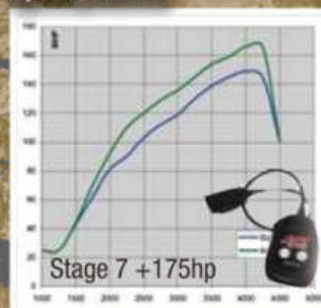
Requires Handset & software, Turbo back exhaust, Intercooler, 650cc injectors, Intake Kit



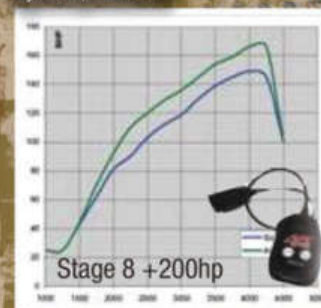
Requires Handset & software, Turbo back exhaust, Intercooler, 650cc injectors, Intake Kit, Inlet Manifold, Hi Flow Fuel Pump



Requires Handset & software, Turbo back exhaust, Intercooler, 650cc injectors, Intake Kit, Inlet Manifold, Hi Flow Fuel Pump Hybrid Turbo



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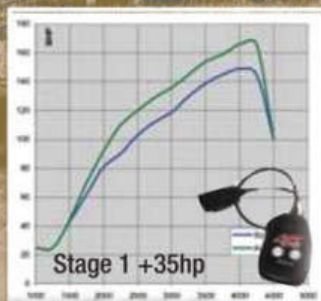
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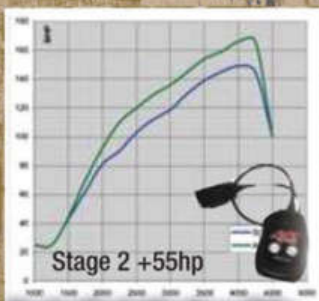
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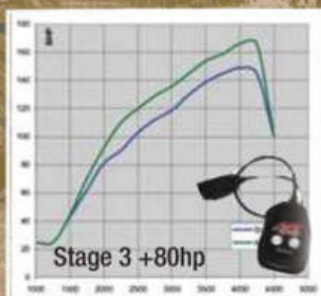
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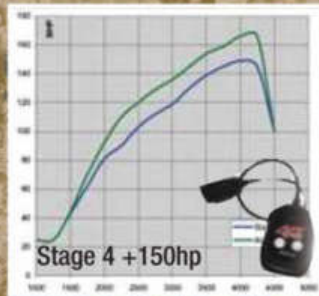
Requires Handset & software



Requires Handset & software, Turbo back exhaust, Panel Filter



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SCOTCH



HON IT!

With around 630bhp to play with, this Scottish Focus RS is one of the big boys. Built by its owner, Chris, and some equally petrol-veined mates in just five days, this is a build to shame all others!

CHRIS POLLIT STEVE MCCANN (WWW.SMCPHOTOGRAPHY.CO.UK)



M

Most people, when purchasing a car that boasts 400bhp to play with, would be happy. Here at PF, we might even do a dance should such a day arrive, because, you know, 400bhp is a fair old chunk of power. If, however, you're husband and wife Fordaholics, Chris and Hayley, you'd do nothing more than maybe raise an eyebrow – 400bhp isn't worth getting out of bed for!

Okay, that might sound a bit harsh. The reality is that while the Focus RS they purchased back in 2012 was nice; it wasn't really the powerhouse it could have been. It was quick enough in the real world, but for Chris and Hayley, it wasn't quite 'there' in terms of what they wanted from it. So, as is often the way for hot Fords in Scotland, a trip to see Simon at Sitech was in order.

Once the Frozen White Ford was on the famed tuner's ramp, some tweaks were done, some fettling was undertaken

and some more power was released, resulting in the RS leaving Sitech with a slightly more respectable 430bhp or so. Now, 30bhp might not be enough to set the world alight, but when you're adding it to 400bhp, it does actually make a difference.

You've probably guessed by now that this is simply where the story starts, after all, we've already told you what power the RS now has. You probably have a good idea of how it's going to pan out too – something along the lines of a bottomless chequebook build perhaps? Before you try and finish the story yourself, do stay with us...

Chris and Hayley aren't your average couple. Together they run Bank Street Auto Clinic, which aims to provide a reliable and friendly means for people in the local vicinity to maintain their cars. It's no full-on tuning shop, mind, it's a garage for maintaining the daily drivers in that area of Scotland.



“IF, HOWEVER, YOU’RE HUSBAND AND WIFE FORDAHOLICS, CHRIS AND HAYLEY, YOU’D DO NOTHING MORE THAN MAYBE RAISE AN EYEBROW – 400BHP ISN’T WORTH GETTING OUT OF BED FOR!”

While it might not be a tuning shop in an official capacity, that doesn't mean it's not a handy means for the couple to live their motoring dreams. As we type, the garage plays home to a host of Fords belonging to the couple including, but not limited to, Cosworths, Sport Vans and STs. In a nutshell, they live and breathe the Blue Oval, which is just fine by us!

So, we've got a Ford-loving couple, workshop facilities, a brace of already modified Fords and, of course, a 430bhp Focus RS. However, 430bhp is not, as the title of the feature suggests, 630bhp. So, how did it get those extra 200 ponies?

While at Sitech for the extra 30bhp to get things started, Chris was introduced to a green RS that was running over 700bhp. This, needless to say, got Chris more than a little excited. After being taken out in it, being subjected to the immense speed in the process, Chris was more than just excited – he was determined. He was going to achieve >





**“THIS MADE SENSE
BECAUSE HE WOULDN'T
BE DELVING INTO THE
UNKNOWN, INSTEAD
HE'D BE EMBRACING
THE PROVEN”**

these levels of power in his newly acquired white counterpart, and that was a fact. He wasn't, however, going to pay someone to do it.

The goal was simple: Chris wanted to test himself. He wanted to get those levels of power via the work of his own hands. Simply paying someone else to do it wasn't an option that sat well with Chris, so it simply wouldn't be entertained. And why should it? Chris is a dab hand on the spanners – it's his job after all. Add in three mates, a clear workshop and a stack of go-faster parts and there's no reason not to have a go. As our dad always says, it's only nuts and bolts.

Not wanting to cut Sitech completely out of the loop – and because the same company had been responsible for the power present in the green car that inspired this build – Chris ordered a whole host of parts from Simon. This made sense because he wouldn't be delving into the unknown, instead he'd be embracing the proven. ➤



TECH SPEC

Engine: Pro Alloy crossover pipe, Group A filter, Pro Alloy breather system, Pro Alloy big boost pipe kit, Wiseco pistons, K1 rods, ported and polished cylinder head, uprated cams, uprated valve springs, Gates kevlar timing belt kit, ported and polished lower intake manifold, Sitech plenum, 750cc injectors, custom 4" downpipe and centre section, Mongoose Section 59 back box, Gizzmo boost controller, Ford Racing boost gauge, Nortech tubular manifold, Borg Warner EFR8374 turbo with Turbosmart actuator, Airtec stage 3 intercooler, Airtec 50mm radiator, Revo stage 5 software, Walbro 450lph in-tank fuel pump, 10mm feed line, external filter, external fuel pressure regulator with return line, modified fuel rail, external fuel pump wiring direct to battery

Transmission: Factory gearbox, quickshift, Sitech flywheel, helix 215mm clutch with solid organic drive plate, Vibra-Technics torque mount

Suspension: BC coilovers

Brakes: AP Racing 356mm brakes

Wheels & Tyres: 18 Compomotive MO 1890, 255/35 R18 Michelin Sport tyres

Interior: Standard Focus RS except for inclusion of boost gauge and boost controller

Exterior: Standard RS with the exception of front towing eye and chin spoiler

Thanks: Simon at Sitech Racing for ordering all parts. Martin Oberheim, Craig McBlain and Sean Chivers for their help with the build after working long hours in their jobs

As you can see, the technical specification of this car is left wanting for nothing, but then again, when you're up near the 700bhp mark, you can't really take any chances. New rods, pistons, a ported and polished cylinder head, uprated cams, uprated valve springs, a ported and polished intake manifold, a Sitech plenum, 750cc injectors and a Borg Warner EFR8374 turbo make up just a small part of the list, just in case you're interested.

The build itself, owing to the car being relatively new, wasn't too hard. What makes it truly special, however, is the way in which it was executed – namely in just five days. Yes, five days is all it took to transform this car from a slightly angry hot hatch through to a beastly, fire-breathing 630bhp monster.

Working late into the night and using the help of three mates, Chris worked tirelessly to evolve the car into the speed-hungry beast he knew it could be. The front end of the RS came off pretty much in its entirety, including the removal of the engine so as to make it easier to work on. Everything was stripped, cleaned and built back up at a rate that would make an F1 pit crew blush if they saw it in action. It was garage harmony, a dance of removed parts being replaced by those of an uprated nature, a cacophony of customisation.

“WHAT MAKES IT TRULY SPECIAL, HOWEVER, IS THE WAY IN WHICH IT WAS EXECUTED – NAMELY IN JUST FIVE DAYS”

It was also, despite the condensed timescale, a time to try new things. The plan, despite the anticipated power, was always for the car to be driven daily. Now, technically, any car can be driven daily, but the general rule of thumb is that the more powerful and aggressive it is, the harder it's going to be – a camp the Focus was definitely going to fall into once it was done.

To get around this, Chris and Hayley worked with Simon at Sitech to come up with the first ever, solid, organic clutch. Add in a Sitech flywheel and you've got a driveline that's civilised and surprisingly light when out and about, yet also more than able to handle the grunt should Hayley feel a bit giddy on her drive into work! So clever and inspired was this clutch solution that it's actually become a popular conversion for many a modified Focus.

Another area that needed to be addressed was the fuel system, as there was no way the stock setup was going to feed the voracious appetite of what would be needed to satisfy 630 galloping horses. To overcome this, Chris and the lads fitted a Walbro 450lph in-tank pump, a 10mm feed line, external filter, external pressure regulator with return line, the fuel rail was modified to suit and finally, the fuel pump was wired directly to the battery. >





Things like that are what people often overlook during a build like this; with power as the outright goal, it can often cloud the vision of a budding builder, though obviously, that wasn't the case here.

This is a trend that carried on further into the car via the brakes, suspension and wheels. Chris and Hayley didn't want it to look too wild, but at the same time, they had to respect the fact that the new engine would make light work of the standard part's lifespan.

The suspension was replaced with BC Racing coilovers – again, a proven and trusted solution. The brakes, they went in the bin in favour of some meaty 356mm AP Racing clamps. Wheels? You can't go wrong with a set of Compomotive MO1890 rims, though on this car they're painted a stunning blue, you know, because Ford. Or maybe white car/blue wheels/Scotland flag? Oh, and let's not forget the 255/35 R18 Michelin Sport 3 rubber.

All that work, all that toil and after a session at Sitech to confirm it, all that power. A full 630bhp, in a car that's as comfortable going to the shops as it is being hurled down the drag strip at Craik, the track at Silverstone or the winding country roads of Scotland. All of that in five days. It takes us five days to wash our socks, let alone build an entire bloody car!

We love this, and it could easily be one of our favourite RSs to ever be in PF. Not only is it stupidly powerful and fast, it's also been built in record time, yet still to the highest possible standards. It's not over the top in the way it looks, because let's face it, Ford did a pretty good job and, most importantly of all, it was built by Chris' desire to simply challenge himself to see what could be done. We could all learn a lot from that outlook, so thanks for that, Chris. In the meantime, if we could borrow the RS for a bit... we'll look after it, honest, won't got over 2,000rpm, we swear! 📷



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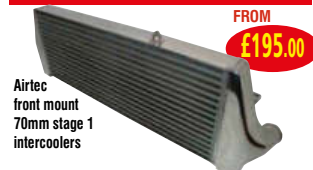
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LAND OF THE RISING FUN

It's a Sierra, it's got four cylinders, it's got a turbo and it's got the ability to make you laugh manically every time you hit the throttle. What it's not got, however, is a YB. We think it's turning Japanese, oh we really think so...

🔧 CHRIS POLLIT 🛠️ BRUCE HOLDER

“IT STARTED LIFE AS A HUMBLE XR4I, WHICH FROM A VISUAL STANDPOINT WASN’T TO ALAN’S LIKING. AS SUCH, HE SET ABOUT GETTING RID OF THE MOST ANNOYING VISUAL TRAIT – THE EXTRA PILLAR IN THE REAR SIDE WINDOWS”



L

Let's just put this out there, the elephant in the room, the unspeakable truth. This Sierra, which is to all visual intents and purposes a Cosworth, does not have a YB engine. Why?

Because owner, Alan Evans isn't a fan, mainly because every one he's owned has blown up at some point. His solution to this, after some trial and error, came from the Far East, the land of precision engineering and getting things right. The solution, dear readers, came from a Nissan. Yup, under the bonnet of this Sierra lies a CA18DET and the car is all the better for it.

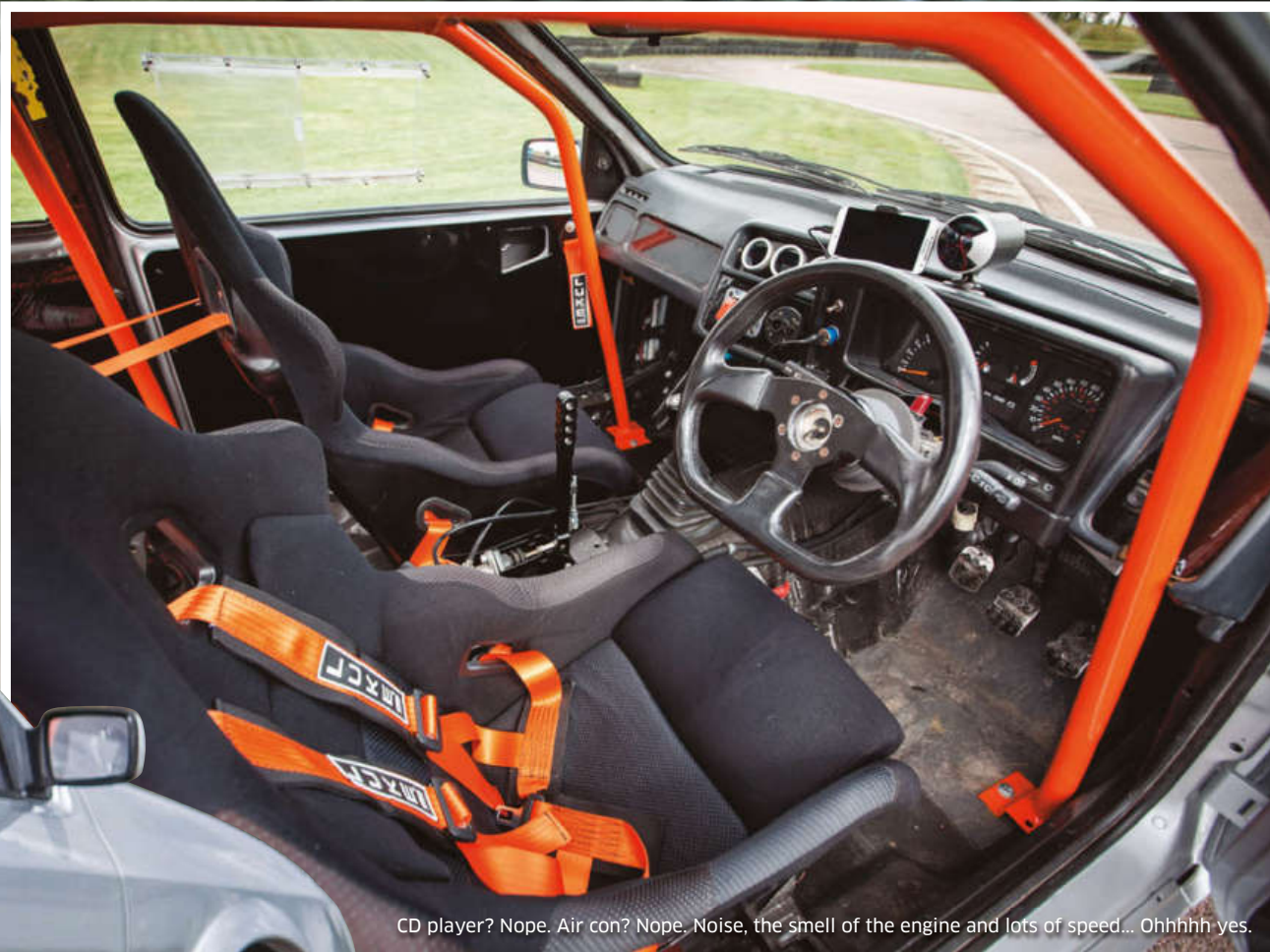
Now that's all well and good, but the reality is that this particular car has been through a number of engine and significant changes during the 13 years or so that Alan has owned it. It started life as a humble XR4i, which from a visual standpoint wasn't to Alan's liking. As such, he set about getting rid of the most annoying visual trait – the extra pillar in the rear side windows. This meant the liberal

use of power tools and so on, and it quickly ended up with Alan realising it was a fruitless and seemingly never-ending task.

As luck would have it, another shell became available, this time though it was a genuine Cosworth item. Needless to say, Alan jumped at the chance, quickly ushering it into his workshop ready for some oily bits.

Using what he had, it was fitted with the 2.8i Cologne V6 from the XR4i. That didn't last long though, mainly because Alan had a more fruity 2.9i 24V Cosworth lump waiting in the wings. You'd think this would be a wise and torquey choice, what with its quad cams, its near 200bhp and the high probability that, given its Granada origins, it would have lived a stress-free life. Er, well, on paper it was a good idea. On the concrete it had quietly been sitting on for a while, however, it seemed to have been plotting its demise.

Once in the Sierra, Alan got everything plumbed in, wired up and ready to go. Ignition on, everything primed, he hit



CD player? Nope. Air con? Nope. Noise, the smell of the engine and lots of speed... Ohhhh yes.



the start button and... oh, IT SPUN ITS TIMING CHAIN! The chain?! When does that ever happen? Alan admits it was his own fault for not stripping a long-standing engine down, but even so, a timing chain error is just plain bad luck.

So, let's move on to engine number three. Again, it was from the Ford stable and again, it came in V6 flavour. It also came with the dilapidated remnants of a Sierra XR4X4, which is no bad thing as spares are always welcome.

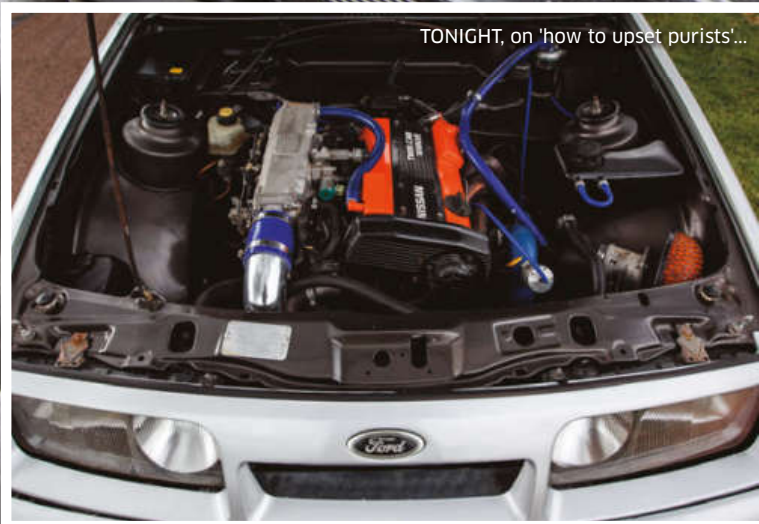
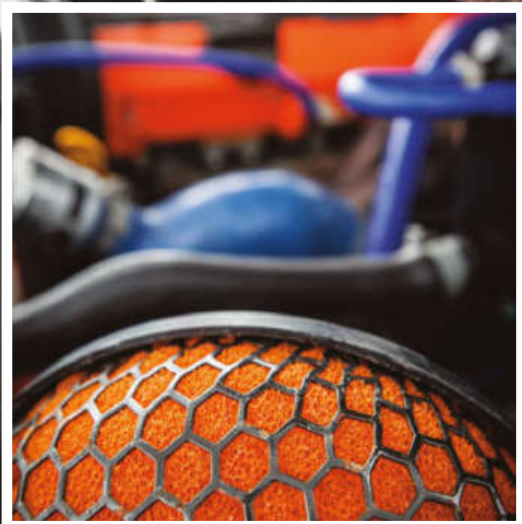
Once again, Alan found himself on the pumping end of an engine hoist and, once again, the 3-door shell was soon introducing its inner wings to yet another engine. Thankfully though, the third lump of power didn't seem to offend the car, so it lasted a bit longer. It also had a bit more grunt than the others thanks to bigger injectors and a healthy dose of nitrous oxide. In fact, it hustles the 3 door along quite nicely, and all in something of a reliable fashion, too. You'd think this would have been the end of it for Alan. He had a working car, it wasn't eating engines like a six year old eats Haribo

and care of other additions such as a decent set of rims, proper suspension, brakes, seats and a hefty roll cage, it looked the part, too. You can probably tell by that build up that, somewhat unsurprisingly, this was not the end for Alan, far from it.

The main issue, despite Alan's dislike for the YB, was that while the car looked great and was by no means a slouch, it simply didn't sound right. It didn't sound enough like a Cosworth, you know, because it was a V6. There wasn't enough drama or excitement when the accelerator pedal was unsympathetically mashed into the firewall. This had to be remedied and, thanks to being 'in the trade' a solution soon made itself known. Yup, this is where things get all oriental.

The engine in question was a CA18DET, which is an inline, four-cylinder turbocharged engine with a capacity of 1,809cc. It also boasted twin overhead cams and in standard guise, 167bhp thanks to a Garrett T25 blower. It was the ➤

**“IT WAS THE LAST OF THE
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KNOW, LIKE WHAT
THE COOL KIDS
WHO DRIFT USE”**



last of the CA engines to be offered by Nissan, and often found its home in a Nissan 180SX – you know, like what the cool kids who drift use.

Anyway, the bottom line is that as an engine, it's cheap, plentiful, powerful and as the tortured mechanical screams from drift cars with these will tell you, also pretty indestructible. Plus, they make all the right noises. Ergo, a CA18DET was just what Alan needed, and thankfully, it's exactly what Alan was offered. ►



TECH SPEC

Engine: Nissan CA18DET, stripped and rebuilt with race main and big end bearings competition piston rings. Engine chemically cleaned, bores honed, crankshaft and pistons polished and machined, competition head gasket, head stripped and cleaned, new valve stems, GT28 turbo, Toyo Sport tubular manifold and turbo elbow, custom intercooler pipework, HKS air filter, dump valve, oil breather catch tank, custom made exhaust with 4 inch tailpipe, custom engine mounts, steering rack lowered on front crossmember, also custom crossmember to hold front-mounted intercooler, twin Bosch motorsport fuel pumps, swirl pot located in boot

Suspension: GAZ Gold competition coilovers, Ford Motorsport suspension bushes all round, polyurethane TCA bushes, large diameter Cosworth front anti-roll bar with 2WD Cosworth rear anti-roll bar, roll cage fully fitted along with rear strut brace

Wheels & Tyres: Team Dynamics Pro lightweight alloys with Khumo semi-slick rubber

Transmission: Nissan five-speed transmission with custom prop, Cosworth limited slip differential

Brakes: Wilwood four-pot front brakes with bells and rotors, rear 2WD Cosworth discs and callipers, ABS removed, hydraulic handbrake, brake lines fitted internally

Interior: Fully stripped out, batter box in boot, plumbed-in fire extinguisher over fuel system and engine bay, competition lightweight seats with Luke four-point harnesses, skateboard grip tape on driver's footwell, aftermarket rev counter, oil pressure, boost and water temperature gauges, battery shut-off and push-button start in centre of dash, lightweight interior door trim with Luke pull straps, MOMO flat-bottom race steering wheel with quick-release boss, Perspex windows with the exception of the windscreen

Exterior: All genuine Cosworth bodykit with quick-release front bumper, full re-spray in Moonstone Silver with gunmetal grey engine bay, interior and underside

Thanks: PG autos for all the late hours painting the car for my stupid deadlines!



“YOU KNOW WHAT? THE PURISTS DON’T HAVE THEIR NAMES ON THE V5 FOR THE CAR, ALAN DOES. IT’S HIS CAR, IT’S HOW HE WANTS IT AND NOW IT’S COMPLETE”

While it wasn't the easiest sucker to fit – despite being the same kind of engine as a YB – Alan fought the good fight and got it in there. It used the Nissan five-speed gearbox mated to the Cosworth rear end via a custom made prop. Some minor battles here and there with wiring, fuelling and so on later and the car was, for the seven millionth time, up and running. Then, because the engine had a bit of end float, Alan promptly blew it up. GOD DAMMIT!

By now, most sane people would have started crying and gone to the pub. Not Alan though, on no. He rebuilt it, he got it running again, then he got stuck on the sodding M1 and cooked it. The dash said the cooling fan was on, but the under-bonnet reality is that it wasn't. As we type, that engine is in the corner of Alan's workshop in a heap of dead bits.

Sigh, right, engine number... er... we have no idea. Nissan engine number 2, let's go with that. That's what's in the car now and, thankfully, it's not committed mechanical suicide. That's probably because it's been stripped, cleaned, the pistons have been machined, the block has been honed and re-bored, the cranks have been cleaned and polished, a competition head gasket has been fitted along with competition bolts and a GT28 turbo has muscled the T25 into the bin. Basically, it's a proper bit of kit now.

After confirming the engine wasn't going to 'do a diva' and give up for no good reason, Alan took it upon himself to treat the rest of the car to some much needed TLC, bringing it up to the standard it's presented in here.

After being completely stripped down, the shell was treated to new wings, a splash of Moonstone Silver on the top with complementary gunmetal grey for the underside, inside and engine bay. The cage and suspension have been splashed with a lairy orange hue to make them stand out, while the interior has been left completely bare with nothing



but seats, steering wheel and the required dials needed on a car built solely for going fast – this is a road-going track car, through and through. No heater, no sound deadening, the windows are Perspex, there's a plumbed-in fire extinguishing system – it's a proper bit of kit.

It's been a long and hard fought battle for Alan, but his perseverance has, without any shadow of a doubt, paid off. His car is not for the faint hearted, it's not for those with any measure of reserve in their automotive tastes and, thanks to that inspired choice of engine, it's 100% not for the purists. But, you know what? The purists don't have their names on the V5 for the car, Alan does. It's his car, it's how he wants it and now it's complete, it's also everything he wanted it to be. It's in your face, aggressive and built for one thing and one thing only – performance. And that is just fine by us! 🏁

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SLEEP 'STATE

Most people simply see Rob Amat's Mk3 Escort Estate as a clean survivor with nothing more than a fancy set of wheels. The reality though, is that while it's stunningly clean, it's also packing a Zetec punch.

 CHRIS POLLIT  MATT RICHARDSON

“THAT IS, OF COURSE, UNTIL HE TURNED AROUND AND THOUGHT ‘THAT THING LOOKS LIKE A TART’S HANDBAG!’”



A

A couple of years ago Rob thought he was the bee's knees. Rolling round like a British Vanilla Ice, he was rocking it hard in his Mk4 Escort convertible, complete with slightly garish 17in alloys... in gold, of course. Oh yes, Rob was living the dream. That is, of course, until he turned around and thought “that thing looks like a tart’s handbag!” His words, we hasten to add, not ours – even if we can’t help but agree.

A change needed to be made, Rob’s manly reputation had to be restored and the Escort name had to be put to good use on a deserving vehicle. The solution that Rob came up

with was to build a sleeper, something that was pure ‘go’. Like we’ve all done in the past, he hit eBay hard and, some 20 minutes later, he stumbled on the very car you see here.

The guy selling described it, as so many of them do, as being mint. Then, when Rob found himself losing an inquisitive finger through a rust patch, revealing a view of the inner wing in the process, the same seller was keen to offer up the somewhat unique verbal contract of “you poked it, you bought it”. Er, right, okay.

Anyway, not one to be deterred, Rob handed over the money on the basis that even if it was a little bit crusty, it was still a relatively rare car so it was worth having. Rightly



so, after all, apart from this one, when was the last time you saw a Mk3 estate? Exactly.

A few weeks later the car was used to go to a show in Margate. All was well, the car got there in one piece, and as you'd imagine, it turned a few heads even in standard guise. However, it wouldn't be standard for much longer, as the drive home (when the fuel pump decided to cash its chips in) would serve as the catalyst for a mammoth and detailed restoration along with extensive modification.

"I thought it'd be simple," explains Rob, "just jack it up, whack on a new fuel pump, job done." That wasn't the case though, because once the car went into the garage, more

than the fuel pump came off. In fact, everything came off, and by October last year, Rob found himself stood in his garage, staring at a stripped down shell of what was, mere weeks prior, a fully functioning car. Don't worry Rob, a fair few of us have been there.

Once down to nothing but a naked shell the work required became obvious, though thankfully it wasn't too bad all things considered. The battery tray (shocker) was in a bad way, taking some of the passenger side floor and bulkhead with it, so new metal was welded in. Other than that, the body just needed some love and affection here and there, nothing too serious much to Rob's delight. ➤



Once dolled up and wearing new paint, there was a revelation: you cannot put dirty parts back on a clean, effectively new body shell. This came as great news to the bank balance of Rob's local powdercoaters – approx. 120 individual parts were renewed and brought back to a standard worthy of the now restored Escort shell. While the powdercoaters rolled around in £20 notes, Rob spent roughly 45 years unwrapping the shiny bits before bolting them to the car. Needless to say, the underside of this sucker is pretty damn immaculate as a result.

Still, immaculate is one thing, what about the mods though? This isn't Stock Ford magazine after all. Worry not, they are present and they are plentiful. Along with all those shiny bits, the Escort has been treated to the front stoppers from an RS Turbo with the added benefit of

braided lines, the suspension has been upgraded to tasty Apex springs and shock, complete with a 60mm drop. Everything has been polybushed to keep it tight, too, so the chassis is well sorted. Each corner houses an RS500 alloy complete with sticky Falken rubber, ensuring Rob can keep his foot planted through the twisty stuff. It's basically got all it needs to be fun.

Of course, all those mods are somewhat moot without the inclusion of an engine. Rob was going to chuck the originally supplied XR3i lump back in, but then he had other thoughts, thoughts based around getting more power. As fate would have it, Rob was offered a 2.0 Zetec that had, funnily enough, been fitted to a Mk3 Escort previously. Sounds like a winner, right? Well, it would have been had it not arrived at Rob's garage in kit form! ➤

“ROB WAS GOING TO CHUCK THE ORIGINALLY SUPPLIED XR3I LUMP BACK IN, BUT THEN HE HAD OTHER THOUGHTS, THOUGHTS BASED AROUND GETTING MORE POWER”



Not one to be deterred, he cracked on and rebuilt the Zetec, subjecting it to the same exacting standards the rest of the car had seen. Cleaned and built up with new parts, by the time it was complete, it was more than befitting of the car. As you'd expect, it had been treated to a number of tweaks, including ZX6 bike carbs, an ST170 manifold, a NODIZ ECU and a full Sportex 3" exhaust. The result is a reliable 160bhp at the wheels, which is more than enough to shunt this 800kg car along at a fair old rate.

With that kind of grunt, it's more than capable of raising a few eyebrows, especially when you consider the way the rest of the car looks. It's mintier than mint, granted, but it's also bone stock. The seats, the paint, the bumpers, it's all poverty spec Escort stuff, in fantastic condition of course. It just looks like a clean old Escort with some nice wheels, until the engine is fired up, then all hell breaks loose!

So far Rob has only put about 900 miles on the car, choosing to use it as a toy and showpiece. He's understandably happy with it, but that doesn't mean plans aren't afoot to make it even more special. Having discovered a company that can offer a 250bhp Zetec on a sequential 'box, Rob's all fired up for the car's next evolution, though he'll need to fill the old piggy bank first!

Still, for now he's got a beauty in the form of one of those cars you simply don't see any more, let alone in modified guise. The fact that this one has 160 ponies at its disposal as well as a sorted chassis just makes it even better. Plus, it's an estate, so he can use it for tip runs at the weekend (sorry Rob, we can imagine you cringing at the thought of that!).

The main thing is that Rob's now got a proper performance Ford, not a gold-wheeled bling-mobile. Okay, so it is a build that caught him by surprise, but the finished result is more than worth the effort. We just wish we had something as nice. ☺



“THE MAIN THING IS THAT ROB’S NOW GOT A PROPER PERFORMANCE FORD, NOT A GOLD-WHEELED BLING-MOBILE”





TECH SPEC (ORIGINAL CAR)

Engine: 2.0 Zetec, ZX6 carbs, Nodiz ECU, modified ST170 exhaust manifold, alloy radiator, full Sportex 3inch exhaust system, 160bhp at the wheels

Transmission: Standard five speed

Brakes: Series 2 RS Turbo front brakes with drilled and grooved discs, standard rear drums, Goodridge braided hoses

Suspension: Apex spring and shocks with 60mm drop, fully polybushed throughout

Wheels and tyres: RS500 diamond cut alloys with Falken 195/50 R15 tyres

Interior: Stock Escort

Exterior: Full respray in factory Ocean Blue, original bumpers, lights, badges and trim

Thanks: My long-suffering girlfriend, Claire. The 'Scorted' group on Facebook for all their advice and motivation and Quest Motorsport for the dyno run and engine setup



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INSTAGRAM STAR



V8? NAH MATE!

Nicholas Keck is lucky enough to live Stateside, which would lead you to think he might be all about V8 power. That's not the case though, as his EcoBoost, four cylinder Mustang goes to prove...

CHRIS POLLITT NICHOLAS KECK

I It goes without saying that here at PF we're more than a little excited about the new Mustang. We've been drooling over pictures, we've been pestering the poor staff at Ford's press office on a near daily basis and we've been going to sleep at night to idle thought of drifting one around our circuit of choice. Like it or not, the Mustang coming to the UK is one of the biggest things to happen within the Ford world for a very long time, so we're happy to embrace our excitement.

To get our fill, like many of you, we found ourselves turning to social media to see what's out there. That's when we found the brilliantly named

@justthetip on Instagram. He seemed to be very much our kind of guy, mainly because he's lucky enough to get behind the wheel of a 2015 Mustang every day. Of course, before we get to the 'Stang, there's a bit of backstory on Nick.

"Ever since I could remember, I've always had a fascination for cars – and the louder the better! The make or model didn't really matter too much, as a Michigan native, I was obviously drawn to American muscle. That's the way most people around there think – there's no way they'd consider a foreign car! In fact, my father once told me that if I ever owned a Honda, he'd kick me out of the house!" >





So, there we go, the proof that Nick is very much one of us! Over the years, he went on to prove that point even more by, and these are his words, “driving every car like a race car”. So, it’s safe to say Nick’s a man who likes a bit of grunt, too. This is something we’re more than happy with here at PF Towers.

Again, like many of us, Nick found that as he got older, it was his passion for and interest in cars that brought his friends into his life. One such person was Jeff, who has the enviable job of being a regional sales manager for AirLift Performance. While Jeff’s personal preference is ‘low and slow’ compared to Nick’s ‘hard and fast’ (oo-err), the two are

still best mates – a friendship that has become both influential and beneficial over the years.

Recently Nick decided it was time to get shot of his beloved 2006 Pontiac GTO (a Vauxhall Monaro) in favour of something else. The brief was set in stone, though in theory, it should have offered plenty of options. What Nick was set on was something rear-wheel drive and turbocharged but still with a sniff of efficiency, as it would be his daily driver.

Now in the land of the free, you’d think that would be pretty simple. Annoyingly though, it was anything but, as Nick explains, “I wanted fast but efficient, turbo’d and rear-wheel drive – it also had

to be something that I could but on some AirLift Performance suspension. What can I say, Jeff had worn me down!

“Annoyingly, there aren’t too many options that use that platform. Yeah, there is the BMW 135i or 335i, but they have too many known issues that would need a warranty – something I was planning to void straight away! I did consider a Cadillac ATC Coupe, but there was no AirLift kit for it. I didn’t know what to go for.”

Having too much choice is fun, but having too little? Man, that’s just annoying. A new car was a must, but there was no way Nick was going to settle for anything that was sub-par, not for his ➤







hard earned dollars. Luckily, Jeff stepped in with an idea that would benefit both parties - a 2015 Mustang 2.3 EcoBoost.

On paper it was perfect, the four-cylinder lump provided lots of power and, of course, lots of tuning options. The car wasn't going to cost the earth, and being a 2015 model, it would be sure to turn heads. Oh, and somewhat handily, Jeff happened to be able to hook Nick up with delicious air suspension - winner, right?

"I had always hated the Mustang more than anything, they never appealed to me. I always hated the stigma that followed the owners of them and that just didn't appeal to me at all." Err, right, what we have here, Nick, is commonly known as a spanner in the works. "Then I saw one for the first time," adds Nick, "and I fell in love with it!" Well, that's lucky. Plus, it's okay, we're right there with you - there's a lot of 2015 (or \$550 code) Mustang love here at PF, as we mentioned.

The car Nick ended up with was a Competition Orange EcoBoost model, bog standard, unmolested and - bless it - completely unaware of what was in store for it.

The mods started before the new car smell had the chance to permeate more than a handful of nostrils, so determined was Nick - warranty? PAH! Nick laughs in the face of warranties, hence the rapid fitment of a blow-off valve, a new intake and the application of a fresh re-map to extract some more horses from the four-pot. Then, of course, came the air...

As you'd expect from a company like AirLift Performance, the kit was a doddle to fit, and once it was on the 'Stang the looks were transformed. Even on stock wheels, the Competition Orange beast looked meaner than a mean thing that was having a mean day, when dropped to the floor. Nick wasn't going to settle for stock hoops though, oh no, he had something else planned. >



"I'm so glad you didn't put black wheels on it" is a common phrase Nick hears, because to do so is a cliché move in the Mustang world. Nick's a freethinker, not a cliché collector, so black wheels were never on the cards – a set of stunning Rotiform SNAs though? Oh yeah, they were very much part of the plan.

Add those rims to the Mustang's ability to rub its belly on the deck and you're left with a car that snaps necks – even if you have a 5% interest in cars, this sucker will grab your attention.

Remember though, Nick is about speed, so don't think his car is a permanent fixture at static Cars and Coffee meets. It's anything but, especially

with the addition of an intercooler and a Magnaflow cat-back exhaust. Then there's the soon-to-be-fitted turbo that'll hoof the 2.3 up to 400bhp – oh yes, this car is all about the speed. And before you whine about air suspension being no good as speed, remember that cars like Bentley, Lamborghini and more have all used air suspension to great effect.

In closing, Nick has this to say, "I plan on having this car for quite some time, so the modifications will continue to grow. I absolutely love it, it's brought me so much enjoyment." And quite right too, that's what it's all about after all? Fair play Nick, your car is a belter! 📷

WE WANT YOUR CAR

Do you fill instagram with the glorious vision that is your ride? Fancy being treated to the same kind of spread Nick has enjoyed this month? Well, get in touch with some info about yourself, your instagram username and some pics – chris@projectviva.co.uk





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PERFORMANCE **FORD** **ICONS:** ESCORT RS COSWORTH

While the newer cars to be emblazoned with the RS badge are great in their own way, there is no denying that the Escort RS Cosworth is the last truly mad, bad and bonkers performance Ford to be built.

 CHRIS POLLITT  BRUCE HOLDER

Say "Cosworth" and the chances are a great many people will picture the car you see here – the Escort RS Cosworth. Yes, there was the Sapphire before it, and the 3-door Sierra before that, which are iconic cars without any shadow of a doubt. However, there's just something about the Escort that sticks in the mind, something that gets any gear-head extremely excited, and rightly so.

Maybe it's down to the desire for the Escort RS Cosworth that Ford built by rallying it for two years before it went on sale. The vision of this thing in full rally spec, rocketing around the tarmac of Corsica or through the tree-lined stages of Finland was enough to get anyone's pulse racing.

Then again, the buzz and popularity around this car could simply be down to the fact that in the dull and drab early '90s, a car with a whale tail, a silly amount of power and an apparent disregard for being sensible in any way, shape or form was the perfect way to spice things up. It harked back to the heady days of the mid '80s when things were fun and a little wilder. Oh, and there's the fact that it was one of the best looking cars to ever carry a Cosworth badge – at least to us any way.





BEGINNINGS

In 1986, the 3-door Sierra RS Cosworth ceased to be, leaving the performance line up in Ford's brochures looking a little more 'grounded'. The Sapphire RS Cosworth was still being produced though, and it was still as popular as ever thanks to its four-door usability. But, therein lay the problem: it just wasn't that exciting. Ford was well aware of this though, hence the development of the Escort version of the Cosworth.

In a nutshell, the Escort RS Cosworth is a three-door Escort with a modified four-wheel-drive Sierra Cosworth floor and running gear – simple stuff, really. But then again, why mess with it? The Sierra had proved to be a massive success over the years, and as we all know, the YB engine is a solid source of power.

Of course, it wasn't just powerful mechanicals that made their way onto the Escort – there had to be some

Cosworth flair, too. This came care of UK designer, Stephen Harper. He penned the original lines for the EsCos and gave it the look that we've all become familiar with. Bringing back the whale tail was a genius move in our eyes – while the Sierra gave it life, we think it found a true aesthetic home on the Escort.

Flared arches all around, deep front bumper with chin spoiler, hefty but balanced side skirts, massive bonnet vents and, of course, those iconic wheels all added up to a complete package that was more than worthy of wearing the Cosworth badge.

While its rallying brother boasted – in some cases – power of up to 400bhp, the road-going version was toned down somewhat to a more manageable 227bhp – more than enough to propel the Escort along a rapid pace. Add the taut, balanced chassis, shorter wheelbase and impressive amounts of grip care of a tweaked four-wheel-drive system and you're left with a car that's as rewarding to drive as it is to look at.

Such was the available grip and more balanced power delivered, even novice drivers (in terms of jumping into a performance car) could drive it with real gusto without fear of ending up in hedge, backwards, on fire – that's a driving experience the old, two-wheel-drive three-door could only dream of offering. Put a driver in it with some skill and the Escort RS Cosworth came alive with both speed, precision and power. As we said earlier, it was a car that was more than worthy of the RS Cosworth name. ➤



LEGACY

The Escort RS Cosworth only had a short life as a road car. Introduced in May of 1992, it was soon just a memory, with production ceasing in 1994. In reality, there was nothing wrong with the car – people loved it, the press loved it, Jeremy Clarkson even bought one, it was a true success in terms of its reception.

It was also a bit of a brute in rallying, too. Winning regularly with the likes of François Delecour and Carlos Sainz at the wheel, it was more than capable of embarrassing the Toyotas and Subarus of the time. With its ludicrous wing and propensity toward sideways action, it was a fan favourite, too.

Sadly though, for all those who appreciated it and aspired to own one, there was a less obedient demographic that opted to simply take it from those who'd coughed up £22,050 to own their own Escort RS Cosworth. This hurt the image of the car thanks to rapidly increasing insurance premiums along with the stress that came from simply owning one at all.

A number of police forces opted to employ the Escort RS Cosworth as the supposed ultimate deterrent for the aforementioned thieves. Using both marked and unmarked versions, the notion was that nothing could escape the Cosworth-driving long arm of the law. That was until one of the police Escorts operated by Northumbria Police was stolen and somewhat unceremoniously torched – irony in action there.



Now though, 23 years (What?! Really? Ed) after the EsCos was introduced to the world, it now sits upon the same motoring pedestal as other motoring greats. It's a true classic and a car that people respect and treasure. Yes, there was a decade where they weren't heinously expensive, resulting in a fair few being subjected to all manner of ghastly modifications, but that era has been and gone now.

These days, a rough example will set you back £15,000 if you're lucky. A minter? We've seen them go for as much as £50k in the past... for a Ford ESCORT! Fiscal madness of the highest order, that. Still, that's what happens when you become a desired, sought after classic.



PF DRIVES

Oh come on now, how is this ever anything less than amazing? Not only are we getting to have a go in an Escort RS Cosworth, we're only bloody doing so via a Monte Carlo edition – number 000 no less! That's not something you get to do every day.

Anyway, we get in and we're faced with familiar-ish surroundings: it's an Escort, Jim, but not as we know it. It seems more 'weighty', you know, more solid than a normal Escort, it's a nice place to be. Still, we could be sat on a barbed wire toilet seat at this point and we wouldn't care, we just want to drive it, and drive it we do.

We can't lie, there was a bit of a 'never meet your heroes' moment, owing mainly to the fact a modern RS would, for lack of a better phrase, kick its arse. The Cosworth, in standard guise, doesn't feel 'urgent', it's a bit more sedate than that. It's not a bad thing though – it's a sign of the drivetrain and four wheels working in harmony.

Get a bit heavier on the loud pedal and, after a brief blob of lag, it picks up and throws you back into the seat. Work it through the gears and keep it on boost and you're rewarded with a drive that is direct, focused and engaging. On the bends it's the same story, with the car rewarding your efforts to keep the boost up by dishing out unfathomable amounts of grip. When – and you have to push hard – the grip does start to run out, there is no panic or snap, just a smidge of understeer to point out what's going on. There are no flashes of our fifth birthday party, our first pet and the Grim Reaper, it's all very controlled.

The only frustration comes from the somewhat clunky, overly heavy steering and the times when the engine comes off boost – though arguably, the latter is very much down to the driver.



The Escort RS Cosworth is a classic now, so it has to be taken on that value. It would be unfair to compare it to its modern counterparts, so we won't. What we will say is that it's still fun and engaging to drive, plus, you can't help but grin every time you see that spoiler in the rear view mirror or a shop window reflection. Come back 1990s, all is forgiven! ☺

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Engine: 1,994cc, four cylinder inline, longitudinal, 2 belt-driven overhead camshafts, 4 valves per cylinder, hydraulic tappets, aluminium head, iron block, Weber-Marelli electronic multi-point ignition, 5 bearing crankshaft, Garrett T3/T04B turbo running at 8 bar, intercooler, 217.9bhp @ 6,250rpm with 217lbft @ 3,500rpm

Transmission: Four-wheel-drive, sdp clutch, 5-speed synchromesh, central planetary differential, torque split 43/66 or 40/60 with viscous coupling

Suspension: IFS via MacPherson struts, snit-roll bar, rear suspension consisting of trailing arms, torsion beam. Coil springs, front anti-roll bar, telescopic dampers

Brakes: Hydraulic brake system, servo-assisted, 278mm vented discs front and rear, Teves ABS

Wheels and tyres: 16 x 8 Escort Cosworth Alloys with 225/45 tyres

Exterior: Full Cosworth body kit consisting of front pumper, all four wings, rear 'whale tail' spoiler, vented bonnet, chin spoiler, RS badging

Interior: Recaro bucket seats, dash mounted instrument pods, CD player, Ford immobiliser, Cosworth badging on dash, electric mirrors, electric windows





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Fit an oil accumulator

An Accusump is a massive step forward to preventing oil starvation in your engine. Here's how to fit one and why

 JIM BLACKSTOCK

A couple of months ago, we spent a few hours blasting the Project Puma round Brands Hatch on a magazine track evening. It was great fun and the car stood up well to the Brands Hatch Indy circuit's blend of short, fast corners.

However, we got chatting to someone who used to run a Puma and who ended up losing an engine, when it suffered oil starvation during long, fast cornering. This was the result of oil surge, as the oil moved to the side of the sump under cornering forces and away from the pick-up, so the engine breathed in air and the bearings ran dry.

This is one of the reasons racers use either baffled sumps, with internal 'walls' to prevent the oil moving around so much that it uncovers the pick-up or dry sump systems, where the oil is stored in a remote tank and the engine is pressurised constantly, which ensures the pump never runs dry.

Both these solutions entail a fair bit of work to the engine, with removal tending to be the easiest option. However, there is another option that doesn't mean engine-out.

The Accusump is an oil accumulator and has been around for some time. It is

a cylinder containing a piston, one side of which is connected to the engine's oil system and the other, a sealed chamber of pressurised air. With the engine running, the oil side of the piston contains engine oil at pump pressure, while the other side of the piston contains the increased-pressure air.

Should engine oil pump pressure drop – for example, if the oil pick-up is momentarily exposed to air – then the air pressure on the air side of the piston forces the volume of oil back into the engine to maintain a flow of lubricant until normal pump pressure is restored. It then refills until it is needed again.

An added benefit is that, with an electrical control valve fitted, the volume of oil can be stored under pressure when the engine is switched off, so that when it is next started, the valve opens and the engine receives pressurised oil as it turns over, prior to firing. This is the time when most wear occurs so pressurised oil at this stage will also help to prolong engine life.

The final clincher is it is fundamentally a bolt-on job, meaning that you don't have to strip the car down too far to have the peace of mind that your engine can't run out of oil pressure – the scariest of all dashboard lights... >

Costs (Inc. VAT)

4 pint (2.25l)	
Accusump unit with EPC electric control	£503.70
Stainless steel clamps	£20.11
Oil filter take-off plate	£51.13
Pipe and fittings	£50.40

TIME TAKEN

4 hours

DIFFICULTY

3/5

TOOLS

Chain filter removal wrench
Screwdrivers
Sockets and spanners
Junior hacksaw
Torx drivers
MIG welder
Crimping pliers
Electrical connectors
Wire strippers

THANKS

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www.thinkauto.com



STEP 1

Start by loosely assembling the valve gear. Everything is supplied, so fit the brass threaded adapter to join the valve to the Accusump (top), the blue threaded inlet to the valve (bottom) and the pressure switch (right)

STEP 2

Assemble all three into the valve block but for now, don't use any sealing tape

STEP 3

Loosely fit the valve block to the end of the Accusump. Note the pressure relief valve is removed for the valve block to be fitted and then replaced afterwards. This is now the complete unit that needs to be housed within the engine bay

STEP 4

On the Puma, there were two basic locations that looked like they could house the 12in cylinder and the valve block: back of the engine or inner wing, under the air filter

STEP 5

Above the rear of the engine was a no-go, due to this resonator's presence and too close to the hot exhaust manifold

STEP 6

On the inner wing, under the air filter looked good. The unit stood too tall though, as it was catching something and would foul the bonnet when it was closed

STEP 7

On the Puma, the remains of the original air ducting to the filter - replaced when we fitted the induction kit - was in the way, so...

STEP 8

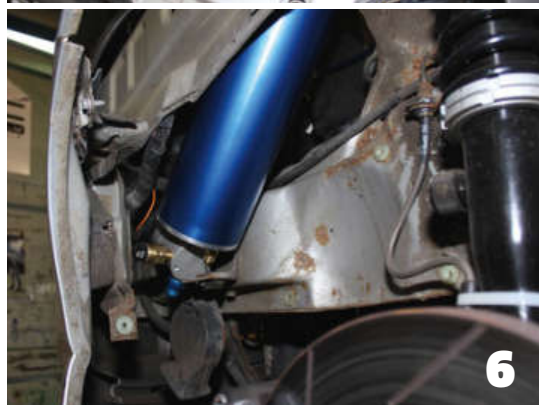
... once the wheelarch liner was removed, the ducting was also removed to allow the Accusump to sit lower

STEP 9

With the air ducting removed, the unit sat low enough in the inner wing area to allow the bonnet to close and the air filter to fit as well

STEP 10

Inside the wheelarch, you can see where the bottom of the unit sits and where the inlet oil pipe will connect (the blue threaded adapter)





11



12



13



14



15



16



17



18



19



20

STEP 11

With the unit roughly positioned, it's time to sort the oil supply to it. First, locate the oil filter. On the Puma, it's accessed from below the engine

STEP 12

Remove the oil filter and watch out for oil running out of it. Ours had been on for a while and took a good go with a chain wrench to get off. We jacked the car right up in the air for maximum access

STEP 13

Once the oil has stopped running out of the oil filter housing, wipe the flat face clean

STEP 14

The sandwich plate supplied with the kit takes oil from the filter housing and ducts it to the Accusump unit. There is an inbuilt one-way valve, so that with the engine running, the Accusump fills but if it discharges, it does so into the bearings, not back to the pump

STEP 15

Slide the threaded adapter inside the sandwich plate, smear some engine oil on the rubber sealing ring that sits against the engine block and finger tighten the central unit. Then tighten a further 3/4 turn with a spanner

STEP 16

Now time to assemble the unit properly. Wrap PTFE tape on the threads joining the unions to the valve block to seal the threads and tighten up

STEP 17

There are two wires coming out of the top of the valve block. Run one down to the pressure switch

STEP 18

Cut the wire and fit a crimped terminal to fit to the pressure switch

STEP 19

The other black wire goes to earth on the chassis or the battery. It doesn't matter which wire goes to the pressure switch and which goes to earth. The second terminal on the pressure switch is connected to the supplied length of red cable

STEP 20

The red cable needs to be connected to a switch inside the car, so feed this wire into the passenger compartment through an existing grommet. We'll deal with this in a moment >



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STEP 21

Time to fit the mounting brackets. These must cover the orange stickers on the Accusump body, so fit them and hold the unit in place

STEP 22

Mark where the brackets will mount to the body

STEP 23

We got our mate Frank to tack-weld four bolts to the body, as we didn't want to compromise the strength of the shell by drilling holes in the suspension turret

STEP 24

We mounted the lower bracket onto the lower chassis leg. This will be covered by the inner wing once it's all re-assembled

STEP 25

Once the welds have cooled, fit the brackets, then the unit to them and tighten fully

STEP 26

Time to start making the oil hoses. At one end of the supplied hose, warm the rubber and insert the straight fitting that will join to the sandwich plate

STEP 27

Loosely fit this to the sandwich plate, which is mounted to the engine block - note the new filter hasn't been fitted yet

STEP 28

On the Puma, we ran the hose across the front of the engine, under the chassis leg and directly to the union on the bottom of the valve block. Mark the centre of the union on the valve block on the hose

STEP 29

Back on the bench, line up the mark from the centre of the union on the valve block with the centre of the 90 degree union and this will show where the hose needs to be cut. Insert the union into the cut end of the hose

STEP 30

Fit the oil hose to both ends. As these are tapered-fit unions, they don't need PTFE and don't need huge amounts of torque. Tighten finger-tight then nip up with a spanner. You'll feel when they go tight. Once you've done that, fit the new oil filter





31



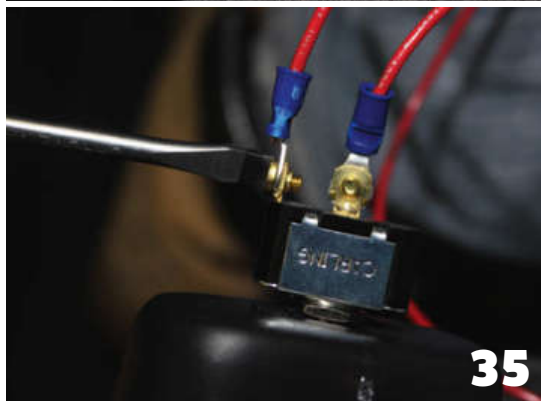
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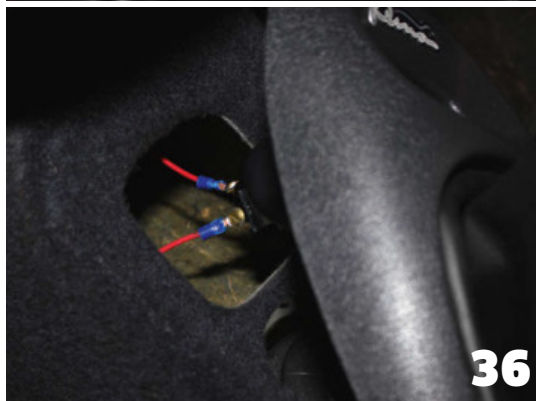
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35



36



37

STEP 31

And that's the engine bay bit of the hard work almost done

STEP 32

Connect the second black wire from the valve block to earth or the earth terminal of the battery

STEP 33

Inside the car, we decided to fit the switch stealth-style at the bottom of the centre console. Drill out a hole big enough for the switch body

STEP 34

Fit the switch and tighten the retaining ferrule

STEP 35

Two wires to the switch - one is the wire to the pressure switch on the Accusump, the other comes from an ignition-switched live feed. We took one off the back of the rear screen switch - fused of course

STEP 36

Tuck it all away nicely for a neat finish

STEP 37

Time to fill up with oil and set it up. We used Morris MultiVis oil - it's from the same company that supplies all the fluids for the Ford Fiesta R2 cars in the Drive DMACK Fiesta Trophy, so good gear. Fill to normal level and run the engine. Check for leaks then isolate the Accusump and re-fill to the normal level. Nice, safe engine

Setting-up and operation

The instructions that come with the unit are very comprehensive when it comes to setting the whole thing up. Basically, the pressure within the unit itself is governed by air pressure that is user-selectable. You pump the air side up to 60psi, check for leaks (leaving overnight if possible) then bleed it down to around 10psi. When you run the engine, the pressure reading on the gauge should rise to around oil pressure.

The valve unit we fitted was the EPC unit, where the pressure switch automatically manages the flow of oil into and out of the Accusump itself, releasing oil when the pressure drops below a certain level (determined by the setting of the switch) and allowing it to refill when it rises above the same setting. The compressed air drives the oil back into the system when the valve opens.

When the engine is running, the Accusump

is charged with oil and when the engine is switched off, the ignition feed to the pressure switch and the valve are cut, closing the valve and retaining oil at whatever pressure the pump was developing when shut off. Then, next time the engine is started, the ignition feed opens the valve and the pressurised oil re-enters the engine as it turns over, pre-oiling the motor and preventing wear. ☐



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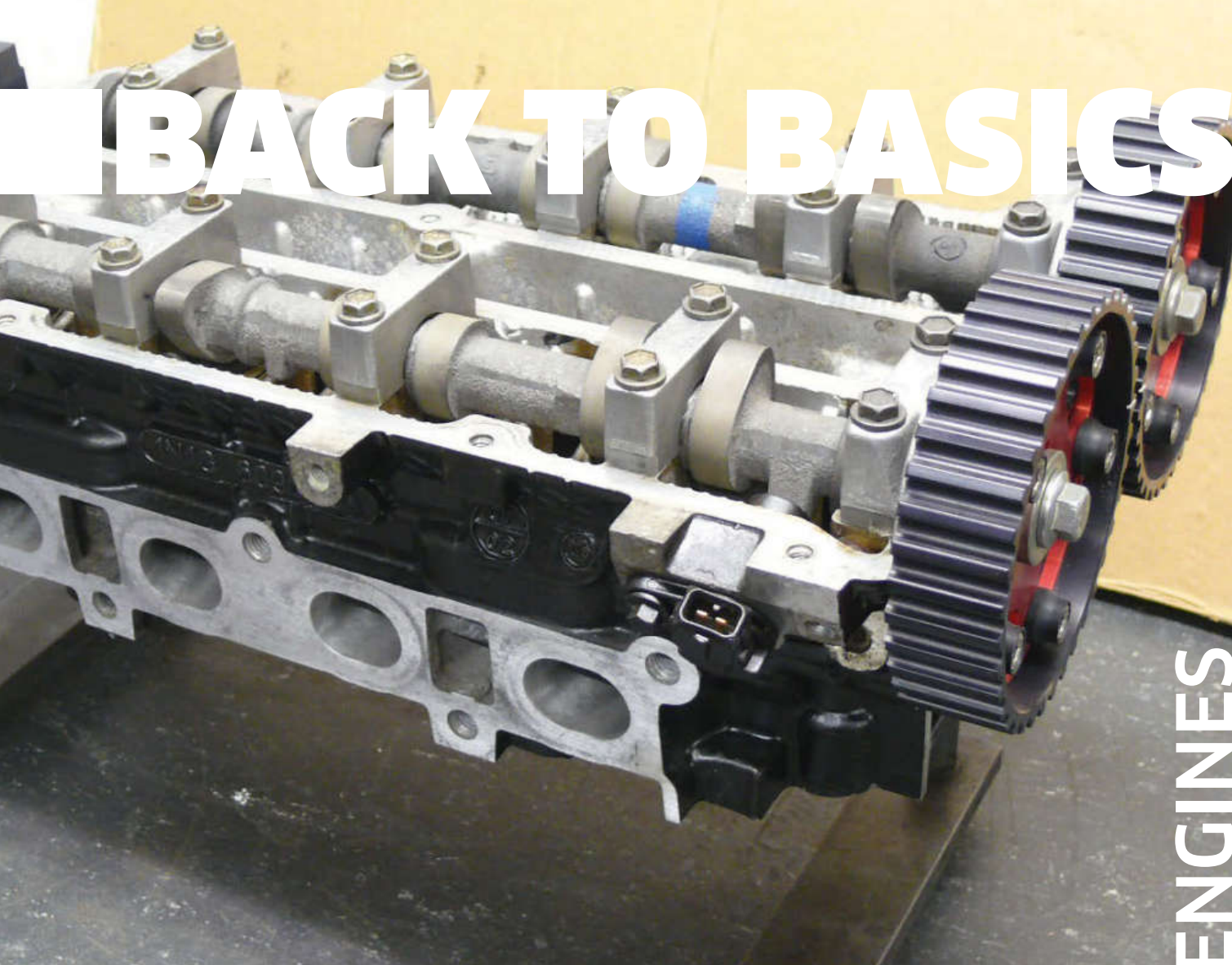


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Top End

After last month's bottom end basics, this month we're moving on up - to the top end

JIM BLACKSTOCK CNC HEADS/VARIOUS

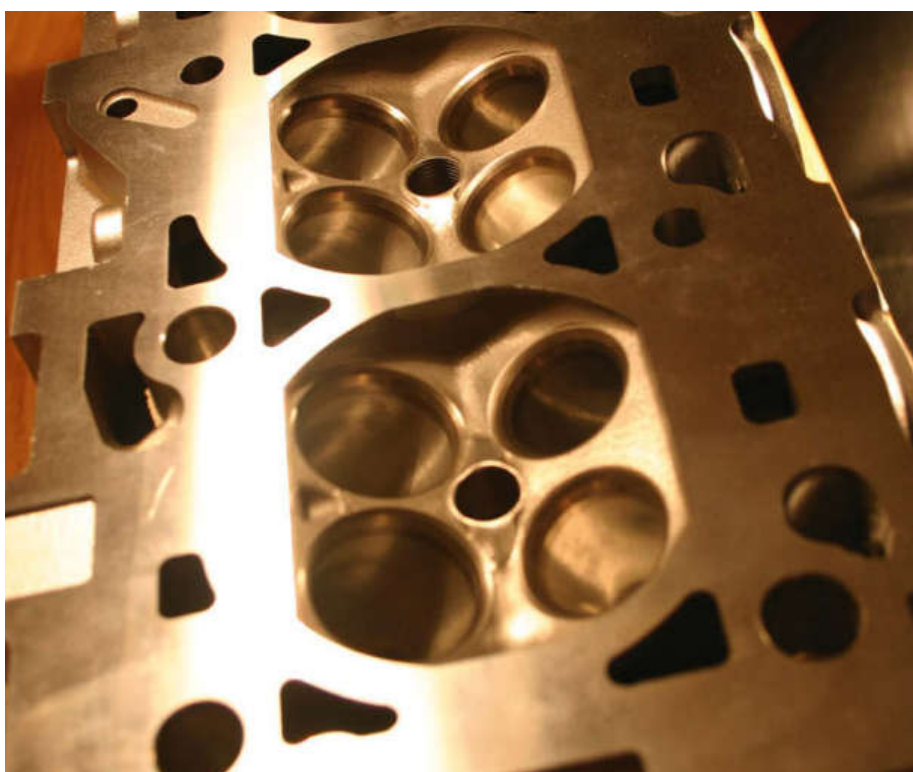
Last month, we featured the first of a two-parter, taking a back-to-basics look at the engine, as we considered the bottom end - the block, crank, rods, pistons and oil and cooling systems.

This month, we're moving up the engine to consider the top end. As we mentioned last month, we're using the cylinder head gasket as the dividing line between the top and bottom end, so this month, we're looking at the cylinder head itself, the camshafts, valves and springs and fuel admission systems.

We're going to be looking at turbocharging in its own right, so you'll have to wait another few weeks for the low-down on blowers. Until then, top end...

Basic concept

The basic function of the top end of the engine is to manage the breathing. The cylinder head includes the inlet and outlet (exhaust) ports and the combustion chamber, where the actual burning of the fuel/air mixture takes place. It also houses the camshafts, which control the valves that open and close to allow the inlet charge in or the exhaust gas out, and the fuel admission system. Finally, the ignition system forms part of the top end, making sure the mixture is ignited at the right point in the firing cycle. ➤



Air flow

Perhaps the easiest way to understand how air flows into and out of the engine is by looking at the top end from its point of view, ie from the perspective of the air flow.

Having passed through the air filter, the incoming air might find itself in a plenum chamber, a large volume of air into which it flows, much like a reservoir. Not all engines use a plenum chamber but most road car motors do, since they even out pressure variations and distribute the air evenly across the inlet ports.

Once the air has entered the plenum chamber, it then flows into the inlet manifold, where it will pick up the atomised fuel – presented in tiny droplets, either under high pressure by a fuel injection system or by the carburettors – and then flows on into the inlet ports in the cylinder head.

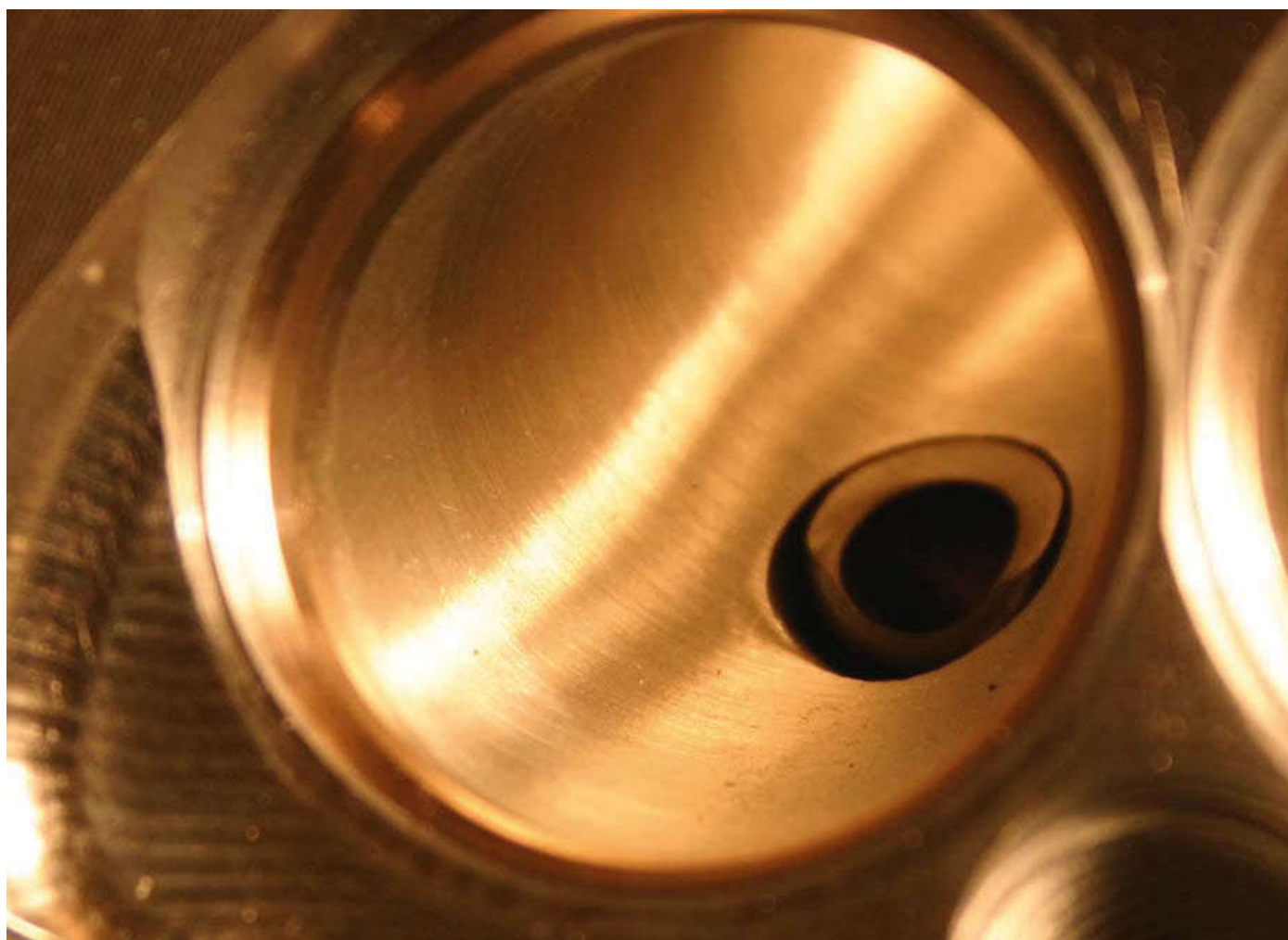
Nowadays, pretty much all engines use at least two distinct inlet ports and two exhaust ports, each with their own valve. Some engines use three inlets but certainly multiple ports. This is because engines used to use single inlet and exhaust ports and while these allowed the engine to breathe at high speeds, they didn't work quite so well at lower speeds, as air speed dropped with potentially negative effects on mixing of the fuel and air.

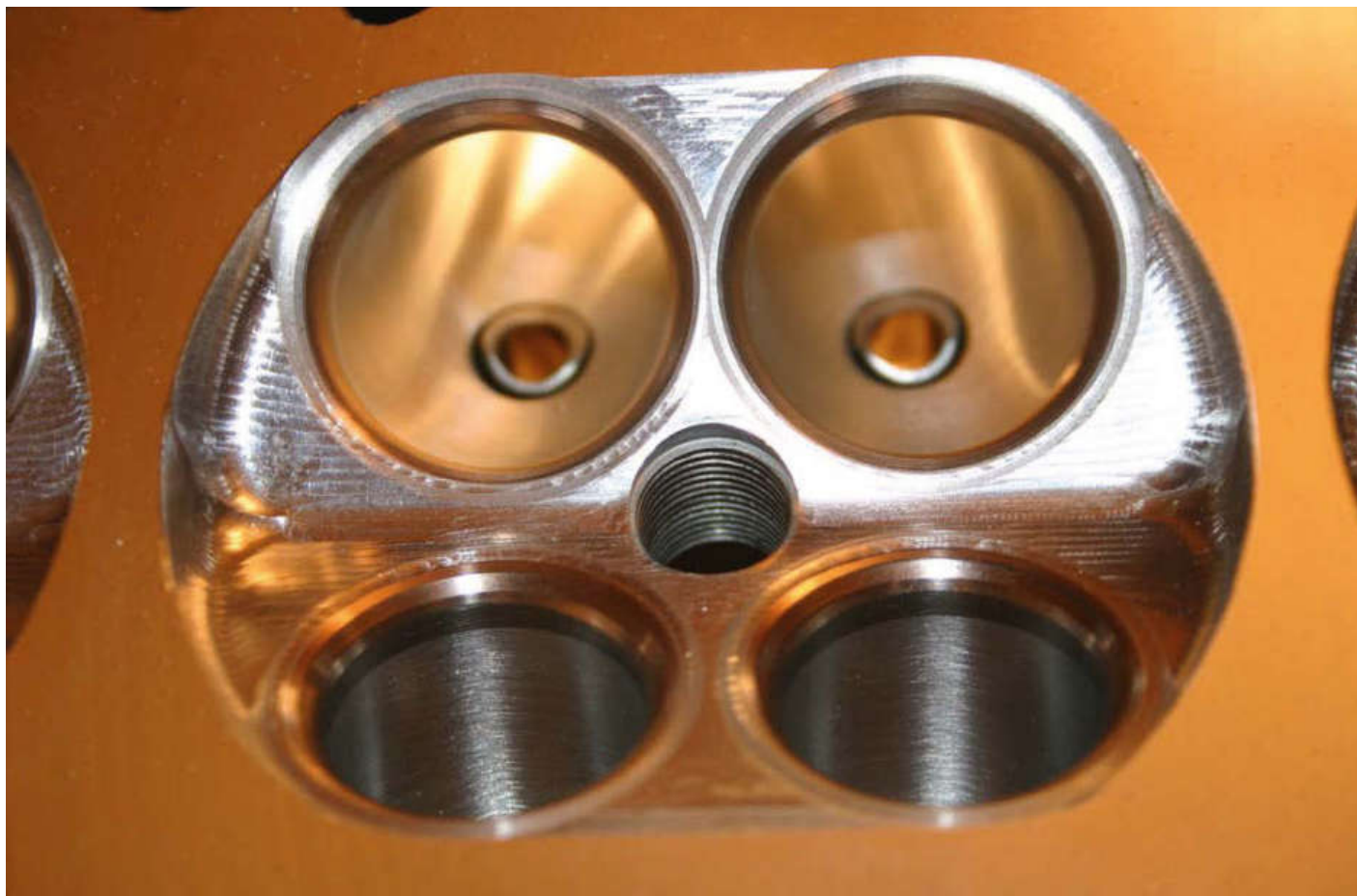
Using two, smaller ports and valves helps to keep the air speed into the engine as high as possible, as well as the volumetric efficiency. This maximises the air's ability to keep the fuel in suspension and evenly distributed while cramming as much volume of air – and hence fuel

– into the engine as possible for a given pressure difference.

So the air rushes down the inlet ports and over the back of the opening inlet valves. The valves are shaped to present the minimum restriction to the incoming air so that the maximum can be pulled into the engine. The larger the valve, the further it opens and the longer it stays open increasing the amount of air entering the engine.

As the piston reaches the bottom of its stroke, the valve starts to close and the air starts to become compressed. However, the shape of the port looking at it side on and from above will determine how well the fuel/air charge is distributed within the chamber. Looking at the ports from above, where possible, they are arranged in a slightly curved shape and offset to the centre of the cylinder, so that the air entering the cylinder head is moving in a circular fashion – known as swirl.





Similarly, looking at the ports from the side, the air will inevitably fall into the chamber from the ports, in a similar way to water over a waterfall. This is known as tumble. The combination, which can be increased by shaped piston crowns if necessary, helps to not only distribute the air/fuel mixture evenly but also, improve mixing and prevent the particles of fuel dropping out of the air flow.

As the air/fuel is compressed and the piston approaches the top of its stroke, the ignition (on a petrol engine) fires a spark to ignite the gas and the combustion process begins. Typically, the spark is fired before the piston reaches the top of the stroke (Top Dead Centre or TDC), so that the in-chamber pressure approaches maximum as the piston starts to travel down the cylinder again.

Once the piston approaches the bottom of the stroke, the exhaust valves open and the burnt gases, still under pressure, force their way out into the exhaust system and on to the atmosphere, ready for the next cycle to begin. The exhaust valves are less shaped and the ports tend to be slightly smaller with their shape not so important, since the pressure differential forcing the gases out is much higher than the maximum atmospheric pressure forcing air into the engine on the inlet side or the 1-2bar that would be seen on a turbocharged engine.

Combustion chamber

The combustion chamber itself is typically a spherical dome within the cylinder head, since this allows the largest valves to be housed within the given diameter of the cylinder bore. It also tends to give a good shape when it comes to placing the spark plug (although in the past, some manufacturers have had to employ two

plugs to get a good burn). Some engines employ squish, which is where parts of the cylinder head overlap the cylinder bore so that pockets of stagnant charge are forced to move and even directed towards the spark plug.

Valve train

Controlling the admission and exit of gases into and out of the engine are the inlet and exhaust valves. The inlet valves are, as we said, shaped to allow the incoming air to pass across them as easily as possible and hence, see the lowest possible restriction. Road car engines tend to use single angle seats, the ring of hardened steel cut into the head that the valve closes against. However, better flow can be generated by adding either three angles or even a fully radiused seat to improve air flow over it.

Controlling the opening and closing of the valves are the camshafts, usually

one for the inlet valves and one for the exhaust. These feature egg-shaped lobes which, as the shaft turns, force against the top of the valve – either directly or via off-set fingers – and force the valves to open, against a spring which holds them shut.

There are several factors that determine how the valves behave and hence, the engine breathes. The first is valve lift, which is how much the valve opens from its seat and this is controlled by the height of the cam lobe. The second is the duration of the cam, which is the amount of time, expressed in degrees of rotation, from the valve beginning to open to returning to fully closed.

The third factor is the cam timing, both relative to the piston position and the other camshaft. For example, there will be times when both the inlet and the exhaust valves are open at the same time, since ➤





this can help to start the air flowing into the engine early, to get more air in.

There are springs which act to close the valves and hold them against the cam lobes, so that the cam controls their movement. However, the more aggressive the camshaft profile (steeper approach angles to get the valve open sooner, for example and closed faster) put additional strain on springs so these would be made stronger for higher-performance engines. Sometimes, a single spring cannot be made strong enough (the wire would be too big and it wouldn't let the valve open) so multiple springs are used.

Without the right springs, the engine can suffer from valve bounce (or more accurately valve float) – where the valve parts company with the cam lobe, either because the lobe hits it so hard on the opening ramp that it literally bounces off the lobe, the transition from opening to closing is so harsh that the valve is still accelerating as the cam starts to close or

when the valve closes, it hits the seat with such force that it literally bounces open slightly again.

Fuel admission

There are effectively two ways of fuel entering the engine: fuel injection or carburetors. Many people prefer carbs for ultimate performance but a well set-up fuel-injection system can work just as well. Here, fuel under very high pressure is fed into an injector per cylinder, normally mounted in the inlet manifold and angled in towards the engine. An electronic signal opens a piezo-valve, which allows the fuel to flow through the injector and the design atomises the fuel into tiny droplets which are picked up and carried by the incoming air. The big advantage with fuel injection is control – exactly the right amount of fuel can be admitted for all engine speed, load and throttle demands, keeping the engine as close as possible to burning all the fuel available.

A carburettor uses the same principle as old-fashioned perfume sprayers, where an increase in air speed creates a partial vacuum within a side passageway and this draws fuel into the centre of the air stream, where it is atomised as it emerges from a small hole – the jet. Carbs do not allow quite the same level of control across the entire engine operating conditions but do tend to work well for a given application and with the right camshafts, for example.

One advantage carbs tend to have is they can give each cylinder a straight run of air to the inlet port and on to the valves. This is why throttle-body fuel injection tends to work well on highly tuned engines, as it also allows the air to enter the engine with the minimum restriction but gives the control and presentation advantages of electronically controlled injection.

Ignition

Way back when, control of the spark was taken care of by a distributor, which physically connected the coil to each spark plug in turn with a series of weights and springs to change the point at which the spark was fired, depending on engine speed. Nowadays, this is controlled electronically, usually using a 'wasted spark' system, where each cylinder has its own coil pack and all the coils are fired at the same time, irrespective of whether that particular cylinder is near the top of its compression stroke or not (in a four-cylinder engine, only one cylinder will be at the right point every time the sparks fire).

The firing point for the spark is stored within the ECU or Engine Control Unit, the 'brain' that managed the ignition and injection if it is used. This contains a series of 'maps', which tell the engine when to fire the spark, when to inject the fuel and how much to inject for a given set of conditions. These can include engine coolant and air temperature, engine speed, throttle position and others, depending on the complexity of the system. ☐



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World Rally Car

In the first of a series, we look at what goes into creating a successful motorsport car from an equally successful road car. This month, the Ford Fiesta RS WRC World Rally Car

JIM BLACKSTOCK M-SPORT

When it comes to the most extreme road-legal car possible, you can keep your drifting, you can keep your pro-street dragster and have a long, hard look at a World Rally Car. More specifically, the Ford Fiesta RS WRC World Rally Car.

For sheer motorsport dynamism and excitement, the FIA World Rally

Championship has it all; smooth, high-speed or slow, car-destroying gravel, slick asphalt to monstrous mountain drop-offs or sheet ice and snowbanks snaking through forests – the WRC is the most extreme motorsport there is. And in cars that drive on the public roads between stages.

To find out what goes into a car capable of performing in all these conditions,

we spoke to Massimo Carriero, one of the engineers at M-Sport, the company which, since 1997, has been responsible for Ford involvement in the WRC.

BASIC CAR

The Fiesta RS WRC is based on the road-going Fiesta that we know and love from Sainsbury's car parks around the country. However, the key term here is 'based'. A huge amount goes into creating a car capable of tackling everything the WRC can throw at it and not surprisingly, there's not much of a stock Fiesta left by the time the M-Sport team has finished with it.

CHASSIS

Every WRCar starts with a standard Fiesta bodysell, taken off the production line. However, once in the M-Sport workshop, a very non-standard programme of work starts. Certain parts of the metalwork are removed (as specified in the homologation papers) while other parts are reinforced and joints seam-welded. A complex roll-cage is installed, to protect the occupants and increase the car's overall strength. This must conform to one of a series of FIA-approved basic layouts but once that condition is satisfied, the detail design is free.

The cage itself is tied-in to the suspension top mounts to provide rigidity and torsional strength while the lower ➤





Side and rear glass can be replaced with Perspex but the windscreen must remain in toughened glass.

INTERIOR

The interior of the car features a lot of metal tubing, forming the roll cage. A more appropriate term would probably be safety cell, since this creates an area of protection for the driver and co-driver, in the event of impact from theoretically any angle. There is an FIA-approved seat each, with significant side and head protection; each crew member uses a HANS device (or similar) to prevent excessive

head movement in an accident and are secured in place by six-point harnesses and protected by plumbed-in and handheld fire extinguishers.

The crew seating positions gradually moved backwards over the years, to aid weight balance, and now they sit farther back in the car than the road version. The co-driver also sits as low as possible, since they do not need such a view out of the car as the driver and as much of the electrical system is located on the floor or as low as possible, to minimise the height of the centre of gravity.

Regulations dictate that the car is

systems, such as differentials, lower suspension mounts, hubs and brakes are fitted to subframes, which can be replaced as single units if necessary.

The maximum width for a world rally car is 1820mm, so the overall design process starts with placing the tyres as wide as possible within this limit and working everything back from there.

BODYWORK

There was a conscious decision by the FIA that cars competing in the WRC must resemble their road-going counterparts and for this reason, the centre section of the car must appear as per the standard car. However, the wings can be extended to cover the wheels and tyres at the maximum permitted width (see chassis) and front and rear bumpers extended to suit.

The front bumper is also modified for aerodynamic reasons, to provide downforce as well as to direct the necessary cooling air for the engine and brakes. The rear bumper is also modified for the same reason.

The huge rear spoiler is more than just aggressive – it generates downforce to help the car develop more grip. The regulations say that from above, it may not extend past the rear of the bumper and from the front of the car, must not be visible.





capable of carrying two spare wheels (it is the crew and team's choice how many to actually use on event) so the Fiesta has one mounted under the floor 'in' the rear bumper and one in the boot.

SUSPENSION

World Rally Car regulations say both front and rear suspension is based on the McPherson design, ie a single suspension leg with integral damper and spring, with a single top mount and (typically) a lower wishbone to control the bottom of the upright.

The front is based on the road car set-up but regulations allow the mounting points to be moved within a 20mm diameter sphere, whose centre is at the original mounting point. For the rear, the road car uses a torsion beam and therefore to replace it with a McPherson arrangement is a lot more work.

Here, the regulations allow boxes of a prescribed size and position, within which the designers must specify the mounting points to be fabricated for the top mounts and the lower wishbones. These allow plenty of freedom to develop a brand-new McPherson arrangement for the rear.

At both the front and rear, a single strut is used, one for gravel and snow/ice and one for asphalt. Ride height is adjustable,

as is the spring rate (of course) and all dampers are adjustable in bump and rebound, both in high and low speed.

The uprights are machined from aluminium - titanium or exotic alloys aren't allowed to manage costs - to an M-Sport design specific to the Fiesta RS. The hubs themselves are also designed and manufactured in-house, in steel.

BRAKES

As with suspension, there are two basic systems, one for gravel and one for asphalt, where overall grip is higher and hence, more braking force can be sustained by the tyres.

Asphalt discs are 355mm diameter and gravel 300mm - the biggest permitted by the regulations. Both use four-piston calipers front and rear and while the calipers look very different, they operate in the same way. The main difference is that water-cooling is allowed on asphalt brakes, with water being pumped through the caliper from a reservoir, before being recirculated via a small cooler. This is used on both the front and back, showing that on the WRCar, the rear does a lot of the work, unlike the road car.

The pad material is selected to suit the rally, with M-Sport using a variety of high-performance material from Endless ➤





for both asphalt and gravel. However, the ultimate choice rests with the driver, since they are the ones who have to actually use – and rely on – it.

There is also a small clutch built into the transmission system which, when the handbrake is pulled – to get the car into or around a tight corner or hairpin – it disconnects drive to the back axle, allowing the rear wheels to lock up while the front continues to pull the car through the corner. This runs on the same hydraulic system that operates the gearbox (see transmission).

TRANSMISSION

All World Rally Cars use permanent four-wheel drive (notwithstanding use of the handbrake – see brakes) coupled to a six-speed gearbox. M-Sport uses an X-Trac system with the paddle-shift gearchange that was re-introduced this year. With a single paddle sitting behind the steering wheel and extending so the driver can still change gear with up to 90 degrees of steering input, the time for a gearchange is in the order of milliseconds.

Once the car has started the stage, there is no need for the clutch on any up or down shifts – the electronics cut the engine momentarily to allow the dog rings to disengage/engage and the hydraulic system makes the physical change within the gearbox itself.

The four-wheel drive system does not use a centre differential – instead, the output from the gearbox is simply split between the front and rear axles using effectively a pair of bevel gears so that drive to the front and the rear is at identical speeds (and theoretically, equal torque split).

However, each of the two axles is fitted with a limited slip differential, based on plate operation on the Fiesta. The characteristics cannot be changed by the driver while on stage but alterations to the ramp angles, pre-load and clamping forces can alter the grip and handling. However, these require the differential to be removed from the car.

ENGINE

Driving the WRCar is a 1.6-litre turbocharged petrol engine, purportedly based on the road-going version and using much of the technology that makes the road engine so successful, such as direct injection. The WRC engine starts with a block machined from a

solid billet of aluminium. Developed solely by M-Sport, it uses a cylinder head based on the road engine but with so much work that it is virtually brand new. The turbocharger is from Garrett while Cosworth produce and manage the on-board electronics.

All WRC engines are fitted with a 33mm diameter FIA restrictor, to limit the power that the engine can produce to a stated 300bhp. There is also a mandatory 8500rpm rev limit but as the engines are turbocharged, this is rarely reached. An anti-lag system is also used to reduce turbo lag and improve response, since typically a rally driver is using lots of throttle, as well as steering, inputs as they go through a stage and response is crucial. ☐

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Weight	1163kg	1200kg (dry)
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* From WRC.com ** Estimated		

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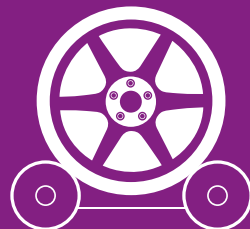
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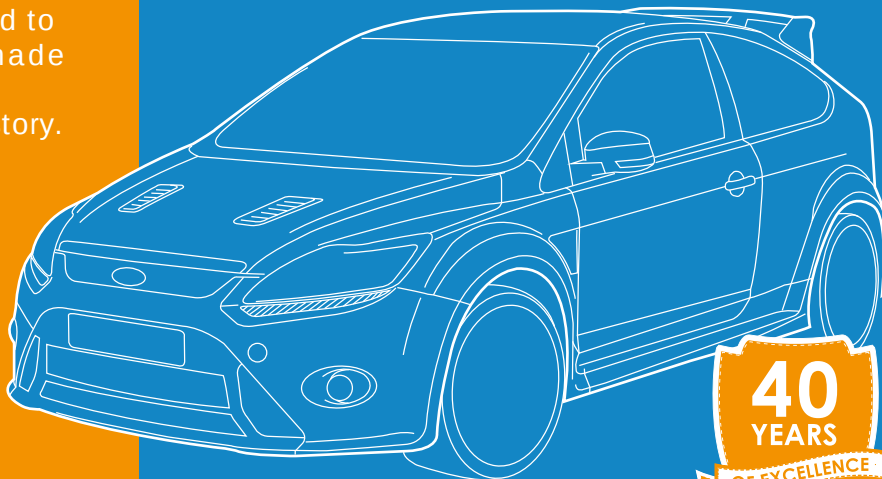
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MOTORSPORT ROUNDUP

Plenty going on for the Blue Oval in the world of motorsport this month...



WINNING WELSH WAYS

Close your ears Englishmen! Welsh rugby is on a high, Welsh football is on a high and now Welsh rallying is on a similar high after Elfyn Evans scored an outstanding career-high second place in the Tour de Corse, the French round of this year's FIA World Rally Championship.

Earlier this season the 26 year old from Dolgellau posted his maiden WRC podium when finishing a fine third in Argentina in his M-Sport Fiesta RS WRC. Now the promising young Welshman has moved one step closer to his first World Championship victory when finishing runner-up to the VW Polo R of Finland's Jari-Matti Latvala on Corsica.

Even so, the history books reveal it is the best-ever result in premier league FIA World Championship motor sport for a Welsh driver, eclipsing his own third place in South America and the pair of Grand Prix thirds posted in the Seventies by talented F1 driver Tom Pryce, who hailed from Ruthin.

After three days of high-speed action on the notoriously twisty and narrow mountain roads, Evans and co-driver Daniel Barritt

finished the epic 'rally of 10,000 corners' 43.1 seconds behind the victorious Finn and just 3.2 seconds ahead of Andreas Mikkelsen in another of the all-conquering Polo Rs.

As well as the star-studded field, Evans had to overcome some of the worst weather the Mediterranean Island had experienced in years, making the mud-covered asphalt stages extremely slippery.

Undaunted, the fearless Welshman conquered the treacherous conditions to lead after Friday's opening leg. The more experienced Latvala then fought back to hold a slender advantage at the end of Saturday's leg but, despite having to concede victory on the final day, Evans performed brilliantly to hold onto second place and add to the current Welsh sporting euphoria.

"I think it's fair to say that it's been one hell of a week for Welsh sport!" enthused a delighted Evans. "To see the Welsh rugby team doing so well, and then my result here, it's just a great achievement and I really hope that I did the boys back home proud."

"Needless to say we're delighted with the result. And thanks also to everyone who

has been sending in their messages of support. I haven't read them all yet, but I will certainly find time to do that!"

The British success story on Corsica was enhanced by Kris Meeke, who followed up his maiden WRC win in Argentina with another strong showing. Arriving back in Europe in confident mood after a podium last month in Australia, the Ulsterman bought his Citroen DS3 WRC home in a fine fourth position.

Both Meeke and Evans will be aiming for further success later this month in Spain and, following that, at their home event Wales Rally GB (12-15 November), the UK's concluding round of the 2015 WRC. In the meantime, Evans will be back on home soil for a special Wales Rally GB media preview.

With two British drivers to the fore, huge numbers are expected in the legendary Welsh forests in November. Check out our competition on page 11, and you could win tickets to the Welsh rally!

MOTORSPORT ROUNDUP



Andrew Jordan remains in mathematical contention for MG

BTCC SILVERSTONE

Mat Jackson, Andy Priaulx and Colin Turkington took a BTCC victory apiece at Silverstone, but it was Gordon Shedden's points haul that had the biggest impact on the potential destiny of this year's title.

Shedden extended the advantage in the standings to 23 points over Jason Plato; thanks to a trio of top five finishes – which included a podium in the opening race. Matt Neal, Colin Turkington and Andrew Jordan ensured that the title will be fought out between five former champions at

Brands Hatch as the trio currently fill third, fourth and fifth positions in the table.

It was Jackson making the headlines in the early part of proceedings at Silverstone as the Motorbase Performance driver scored his second successive pole position on Saturday, which he duly converted into a lights-to-flag win in race one.

Team IHG Rewards Club racer Priaulx claimed victory in the second contest after getting the better of Jack Goff's MG and pole position man Jackson. It was then

Team BMR RCIB Insurance racer Turkington who produced a fantastic drive to win the final Dunlop MSA British Touring Car Championship encounter at a sun-kissed Silverstone.

Collard allowed Tordoff through in an attempt to let his stablemate catch Turkington, but when that didn't materialise the pair reversed places again before the chequered flag to complete the podium positions – a decision that ruled Tordoff mathematically out of title contention.

Honda extended its lead in the Manufacturers' order, whilst Team BMR RCIB Insurance edged closer to both the Teams' and Independent Teams' titles. Turkington tops the Independent Drivers' table and Josh Cook holds an unassailable lead in the Jack Sears Trophy.

Mat Jackson said: "It is a great result for us and it has been a great weekend. All the races were good for us for various reasons though. Race one, in particular, was fantastic. To be with the soft tyre and no weight; it was the best combination that we could have wished for. Overall we leave here very happy. I hope that we can be right up there for the next one at Brands.

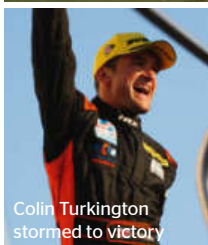
"Before this weekend, we were up there at Rockingham and I'm hopeful that we can head into Brands and do much the same. It's a difficult one with the battle going on for the title. I don't want to get mixed up in anybody's championship push – that's the last thing I want to do. But, we're there for results. We'll race hard but we'll race fair. It's not my show to go and spoil."

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Mat Jackson took an impressive race one win



Colin Turkington stormed to victory





FIESTA ST AT THE FRONT

The Ford Fiesta ST is the most successful vehicle in Red Bull Global Rallycross history, and the 2015 season has been no exception. Heading into this weekend's GRC double-header in Barbados, four of the top five drivers in the hunt for the Driver's Championship are behind the wheel of a Ford Fiesta ST Supercar.

Ken Block of Hoonigan Racing Division leads the pack by 13 points. He has taken home three victories this season, putting him in contention to be the driver with the most wins in RBGRC history. Those three victories, coupled with a pair of additional podium appearances, have made 2015 Block's most successful season to date.

Olsbergs MSE driver Sebastian Eriksson currently sits third, 36 points behind Block. He's been a consistent force throughout the season, capturing one victory and three additional podium finishes in nine events. Eriksson is the newest addition to the most historically dominant team in Red Bull Global Rallycross. Olsbergs MSE has the most wins in the series, and a member of OMSE has won all four of the Driver's Championship titles.



TRACKS IN TURKEY

Timmy Hansen has continued his run of good form in the FIA World Rallycross Championship presented by Monster Energy after winning this weekend's Intercity World RX of Turkey. It is the seventh consecutive event that Team Peugeot-Hansen has finished on the podium. Ford Olsbergs MSE driver Andreas Bakkerud took the runner-up spot and third place was taken by Team Volkswagen's Swedish driver Johan Kristoffersson.

This weekend's result sees Hansen close the gap on Championship leader Petter Solberg - Hansen is now 19 points adrift of Solberg in the overall drivers' standings with two rounds still remaining. "We lost too many points this

weekend, which isn't so good for the Championship, now the pressure is really on for Italy," explained Solberg. The Norwegian failed to make the final after he broke his car's driveshaft in the first semi-final and nursed his Citroen DS3 Supercar to the finish.

Bakkerud - who won last year's Turkey RX - was just three hundredths of a second behind event winner Hansen. The Norwegian explained: "It's really great to be back on the podium but it's hard to be second when you're so close to the win. The team have worked so hard and it's nice to be able to give something back to them. Reinis should be here with me. It was a great battle and unfortunately he lost out."



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RALLY DAY 2015

Castle Combe plays host to a lot of events, but the greatest has to be Rally Day. Motorsport icons, legendary drivers and lots of track action – it's motorsport nirvana!

CHRIS POLLITT STEVE PRIOR

Rallying is, without any shadow of a doubt, the most demanding and dangerous form of motorsport in the world. Don't you agree? Think about it – cars flying along on often loose and slippery surfaces at speeds waaaaay into triple digits with no Armco or barrier to save them should it all go wrong, just the firm embrace of a tree, or a free fall, or a lake, or a rock. The guys and girls that do this for a living, be it at the pinnacle of the sport via the World

Rally Championship, or at the entry levels of clubman competitions, are all heroes. Don't get us wrong, they're all clearly missing a few brain cells – probably from the 'self preservation' section of the noggin – but none the less, they're heroes. As such, they, their cars and all that combines to make the sport what it is should be celebrated, and that's exactly what Rally Day has been doing since 2001.

Over the last 14 years, the event has grown in size and stature, now ➤





Elfyn Evans wasn't holding back!





attracting visitors, stars and cars from all over the world. Basically, if you like rally cars, there will be something here for you.

This year was no exception, with the show arena crammed to the brim with motors of all shapes and sizes. Now, obviously this isn't a Ford exclusive event, but the reality is that Fords make up at least 50% of the attendees thanks to a rich and exciting history in rallying. As such, the likes of the RS200 both in road and rally trim were there to be seen, as were rarities such as a genuine RS1700t, Gartrac Escorts aplenty, Mk1 and Mk2s from standard through to full-blown safari spec, modern classics like the Escort RS Cosworth and WRC Focus, Sierras, Fiestas and so much more – there was something for everyone.

That's the beauty of this event – its significance ensures that owners make the effort to bring these cars out to play, which is great for us! It also means the big bots rock up to Combe as well. By that, we're talking about the likes of the M Sport World Rally Team, who brought along a selection of cars including WRC monsters right down to the R5 Fiesta – a car used by many to enter the world of rallying. >



Ari Vatanen, the legend!

Now all these cars, as you can see from the photos, are wonderful. However, rallying is sport that's all about action and speed, so it would be wrong to have them spend the day being static, wouldn't it? Good job some of them were put to use on the track then, both by owners and professionals. There's nothing better than seeing and hearing these cars in action, and thanks to the expansive banked viewing areas of Castle Combe, everyone could see the action.

In the middle of the day, things got even more exciting thanks to the track being quickly converted to the Castrol Edge rally stage. With added chicanes and tight, technical obstacles, cars were able to go out and show not only their speed, but also their agility. Drivers included WRC supremo and all round nice chap, Elfyn Evans who honed the living hell out of his WRC RS Fiesta on the stage, giving the crowds plenty to cheer about.

However, the biggest highlight of the action had to be, without a shadow of a doubt, rally legend Ari Vatanen kicking the pedals in a classic Mk2 Escort – a car he's famed for piloting to victory on many, many occasions. Two legends, one in the flesh, one in the metal, doing what they do best – that alone was worth the admission price!

As you can tell, Rally Day 2015 was a roaring success, which is sure to further expand and develop the reputation of the event ahead of the 2016 outing. If you have the means, we really do suggest you get yourself along, as it's one of the finest meets on the calendar, even for those with just a passing interest in cars. Plus, it might spur you on to build your own rally car, or to become the next WRC champion, or maybe you'll just buy a t-shirt and see some nice motors. Whatever you do, you'll thoroughly enjoy it, we can promise you that. ☐





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Monster Trucks

Come on, admit it, we all like to see a monster truck. A bit of car crushing, some insane jumps and, in recent years, automotive insanity such as backflips – in a four-tonne truck! Oh, and it all started with a Ford!

CHRIS POLLITT VARIOUS

In the late 1970s, over in the good old US of A, there was a chap called Bob Chandler. Bob was a successful man care of his business that sold hop-up (to use the American terminology) parts for 4x4s and pick-up trucks. Midwest Four Wheel Drive and Performance Centre, based in Missouri, was set up by Bob and wife, Marilyn, to offer something 'more' to the avid 4x4 driver, a facility that was much-needed prior to this – given that a Ford F-series vehicle is sold every couple of seconds, it's no surprise that Bob's business became a hugely popular one.

Still, popular though it might have been, Bob wasn't going to rest on his laurels and enjoy success on a plateaued basis. No sir-ee, he wanted to promote his business as much as he could, and one day, while looking at his much-loved and severely modified 1974 Ford F250 truck, he had a brainwave: could it – thanks to being jacked up and fitted with massive tyres as well as a thumping V8 – drive over some cars?

In 1981, after the name of the truck – Bigfoot – had spread care of many a show and promotional event, Bob's idea became a reality. He buttered up a local farmer for

the use of a bit of land, he grabbed two junk cars, he lined them up and, after a symphony of revs and tyre noise, Bob and his truck were atop a pair of now definitely scrap cars. Monster trucks and the hand-in-hand act of car crushing were born.

EVOLUTION

Since then, the world of Monster Trucks has grown massively, and it shows no sign of stopping. Once Bob had crushed a couple of motors, other people wanted to play, too. Bob happily sold them the parts to convert trucks to monsters, which eventually led to the birth of the trucks you're more than likely familiar with today – the ones with 10ft tyres.

There's only so much promotion big trucks can do though, so the next evolution was obviously to enter them into competition with each other. After all, competition breeds evolution, so it could be no bad thing.

Admittedly, in the 1980s the racing was more an exercise in noise and destruction than it was in outright speed. The first generation of monsters were quite simply factory model trucks with a wealth of suspension and four massive wheels. As such, they were sodding heavy and they



were not exactly fast. Still, their 'relaxed' pace helped cement Monster Trucks into the public psyche because a slower speed resulted in much more gratuitous and satisfying car crushing.

In the 1990s things started to heat up. The industry was increasing in size, the fans were demanding more action and, most importantly of all, the technology to push these beasts even further was becoming more accessible on an almost daily basis. Soon, the trucks were no longer limited to being steel and heavy. They started to appear as space-framed, highly engineered competition vehicles. The way a truck could look was hindered only by the team's imagination thanks to the use of fibreglass to whittle bodies that could resemble anything, including a snake, Superman, a dog or, well, anything really. And yes, the ones

we just mentioned are/were all real!

As time rolled by, the evolutions kept coming. The petrol V8 engines were binned in favour of supercharged V8s of a huge displacement (as near as dammit 10 litres) that favour a slurp on the old methanol opposed to regular petrol. This means these suckers can kick out anywhere from 1,500 - 2,000bhp, and even though they weigh a few tonnes, they're by no means lacking in get up and go!

The chassis of a Monster Truck has evolved, too. The spaceframe is now a full-on safety cell as well as means to attach the body, engine, suspension and so on. The suspension itself can now take massive, MASSIVE hits care of multiple shock absorbers, up to four feet of travel and significant bracing. ➤





© BASHEER TOME



MONSTERS TODAY

Today, the main outlet for Monster Trucks and their associated insanity is Monster Jam. Filling US arenas with tens of thousands of people across the country on a weekly basis, Monster Jam offers a level of excitement that very little can match.

There is still a fair amount of racing, normally over a pre-built circuit incorporating jumps, sacrificial vehicles to crush and tight, technical curves that require the utmost in terms of skill and control from the drivers. It's exciting stuff, but ask any fan and they'll soon tell you it's not the main attraction. Nope, that'd be the freestyle round.

In the freestyle section the drivers are given a set amount of time to do whatever the hell they like, and trust us, they capitalise on this opportunity – it's an unwritten rule that if you can drive your truck out of the arena under its own

steam once your time is up, you've failed.

Huge jumps are all part of the fun, with leaps upward of 50ft high a common occurrence, though remarkably these grasps for the sky do very little harm to the truck. They do backflips, too. No, really, search on YouTube and you'll see what we mean. Once you've gotten over that, search for 'double backflip' because, yep, they do that, too.

If that's not enough to float your adrenaline-propelled boat, how about the random inclusion of a motorhome, speedboat or fancy car from time to time, to be destroyed in whatever way the drivers decide? Trust us, there is nothing more thrilling than 2,000bhp of angry, cartoonish vehicle smashing through the walls of Walter White's preferred mode of transport. It is, from start to finish, madness. ☒

LINKS

www.monsterjam.com
www.monstertrucknationals.co.uk





MONSTER TRUCK FACTS

- The first Monster Truck, as mentioned, was a Ford. It was a 1974 F250 4x4 with significant modification
- The BIGFOOT team was sponsored by Ford from 1983 until 2005
- The BIGFOOT truck used in the 1989 film Road House was built specially for the movie. In the same film, it drove through a Ford dealership, crushing new cars!
- The average number of cars crushed per year at Monster Jam is 3,000
- Tyres can cost up to £3,500... each!
- Aside from BIGFOOT, one of the longest-running teams is Dennis Anderson's Grave Digger - now 27 years in the running!
- Monster trucks have four-wheel steering, operated by a switch in the cabin
- If they go out of control, they can be shut down by remote control
- In 1999, a BIGFOOT truck successfully jumped the wingspan of a commercial airplane



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DARREN FITCH

Darren's 1987 Fiesta started life as a 1.4 Ghia D reg in bronze. It still contains the original 1.4 Ghia engine with 5-speed gearbox, but he's added a few special modifications...

"I've added twin choke Webers K&N

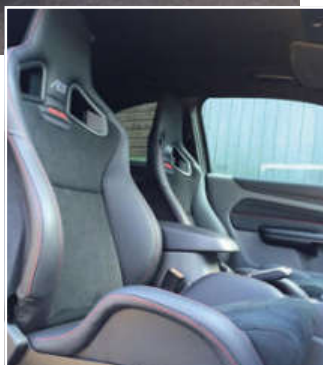
induction, and a 4-2-1 manifold XR2 exhaust," Darren explains. "With this, alongside a good service, and some other tinkering, it's now a pretty nippy Fiesta for its age, doing 0-60 in around 7 seconds. There's also a drop of 40mm

all around, braided break hoses and shiny chrome parts in engine bay. It's a quick, small-engined classic that also gives a nice pop on the engine run down – and also produces a nice little flame. A simple but quick daily classic!"



STEVEN COLLINS

Steven's Focus RS has stealth fighter looks and has some solid upgrades under the hood to back it up. The black is Panther Black in 2013 by Puma Build and it's had full re-trim by SF Car Trim. Those are Genuine RS 500 wheels shod with Michelin pilots super sport tyres. It's got an engine spec RS 500 fuel pump, Airtec intercooler, Anembo Plenum, SCC Pro Alloy induction kit, Miltek full exhaust, 550 injectors PB400 map, and Turbo Smart re-circ valve. Very nice, Steven!



JAMES HAYES

This Mk1 FRS is a good looker. James has added a splitter, ST170 black headlights, tinted indicators and side repeaters, Panther black mirror caps, Richbrook dumpy aerial, Rota D154s, tinted windows and Climair wind deflectors, de wipered, streamline carbon sills and spark plug cover. He hasn't neglected performance either, with Gaz coilovers, Rally Flapz, full decat system, K&N Gen 2 and a Bluefin map.





RAMIN SCOBIE

Now, this is a real classic beaut. Ramin's 1989 2WD Sapphire Cosworth is upwards of 400bhp...! Its spec, which is extensive, includes: 200 block bottom end, Pocketed Mahle pistons, 4x4 head, T38 Turbo running 28psi, Siemens Dekka 660 injectors, P8 ECU setup by Steve Scott at A1 Rallysport. There's a 4x4 inlet plenum with spacer, grpA air filter and uprated Bosch fuel pump

and loom. There's more with grpA coils, grpA turbo damper, Motorsport ignition leads, Samco silicone hoses throughout, Airtec alloy radiator, intercooler, turbo cooler and Aeroquip turbo oil pre filter.

If that's not enough, there's an AP racing paddle clutch, ZF 2-way differential and grpA diff mount. Brakes are Brembo 4pot callipers with 330mm AP racing discs with uprated

lines and suspension comes in the way of GAZ adjustable coilover suspension and fully polybushed sitting on Compomotive CXT 18" alloy wheels.

"I've owned it for four years. It's on its third engine and over 400bhp now!" Ramin tells us. "The car has had a full respray and extensive work and modifications. I love to drive it hard, so more than happy to get sideways and smokey!"

LEE NEWMAN

Here's Lee's 2013 Mk3 Focus ST in race red, and in just eight months since he's bought it he's transformed the car from standard to a proper street machine. Let's have a look at the spec: a 3" custom cat back with 4.5" slash cut tips, with 3"Cobra decat makes up the exhaust, and under the bonnet there's a Radtec intercooler, Forge induction kit, Mountune boost pipe kit, DS Ultima re-map and it's running a Cobb short shifter.

Chassis-wise, there's KW Variant 1 coilovers, Steeda rear anti-roll bar, and Steeda rear adjustable end links. Lee's got a nice set of Bola B1 alloys and aero and styling that includes an RS-style spoiler, RS bonnet vents, US spec grill, Triple R front splitter, grill inserts painted gloss black and gloss black roof wrap. To finish it all off, Lee's had all engine plastics hydro dipped. Proper job!





DAZ KNOTT



STUART WATSON



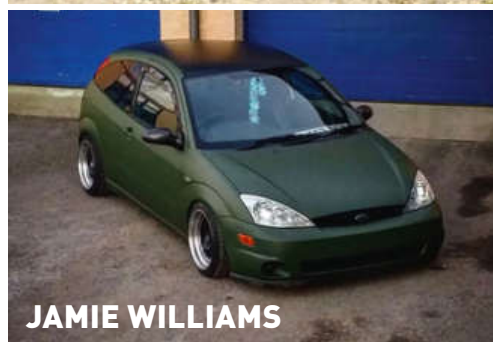
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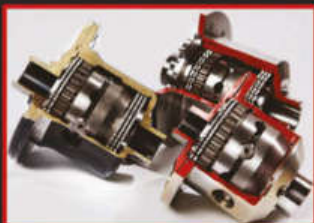
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The entire goings on from the world of the motors we have at our disposal. There may be occasional outbursts of rage due to problematic repairs - we've all been there!



JIM BLACKSTOCK **PUMA 1.7L**

BEST BIT:

When the oil filter finally began to turn and not just crush any further

WORST BIT:

When the metalwork I was cleaning mud off turned out to be even more mud. And learning a metal shed had blown into the car...



SHED'S NOT HEAVEN

"I'm sorry darling but a shed has blown into the Puma...". Things you don't want to hear before you've even finished your first coffee of the day.

You read that right - a shed blew into the Puma. Not a kid's shed, not a small one but a 6' x 8' metal shed. Blew into the Puma.

My wife had been to the local auction, wanting a shed or half-shed to store garden clobber in. She'd left cheeky bids on four, including one already built, figuring if she missed out on early ones, she'd eventually get something.

In the end, she won all four, including the built 6'x8' metal number, standing 7'6" tall. Once the lorry transporting it back had arrived, she and a few others lifted it off and placed it carefully next to the Puma.

As it was made from lightweight sheets and with no floor, it weighs a lot less than it looks like it should. As a result, a hefty gust of wind picked it up and rattled it across the back bumper of the Puma.

Not surprisingly, the shed fared better in the whole process than the Puma. There was a large split in the Ford's plastic rear bumper - around 150mm long as well as various scuffs and scrapes across the full width.

A quick squint on eBay revealed several rear bumpers up for grabs but none in the right colour and none closer than a day's drive to go and pick up.

So we started wondering how easy it would be to repair. A quick call - and emailed photos - to a local body guy, Premier Paint Solutions, revealed repairs like this are fairly straightforward - bit of





COSTS

Oil filter
£8

Morris Multigrade 5W40, 5l
£42

fibreglass, bit of plastic welding and bob is your mother's brother.

So we're going to head over there for next month's How-To, to see how straightforward it is to repair damage like this, which is not only inflicted by flying small buildings but is typical of what can happen in the average car park (from another car, not small-scale storage buildings).

In the meantime, we discovered a bit more of the Puma's past, when we whipped out the inner wheelarch liner as part of fitting the Accusump oil accumulator in this issue. As you do when you pull a panel like that out, I started to brush out any mud that had found its way past the liner and into the area at the end of the sill/behind the front arch.

I thought I was brushing loose dirt from the face of the bulkhead but it transpired that what I thought was the bulkhead was actually a solid clump of earth. It got to the point where I had to go at it with a screwdriver to break it up and pull it out.

In the end, I brushed it up and weighed it - you can see how much there was and it weighed almost two kilos. Two kilos!

You might wonder how two kilos of dirt got into a supposedly closed space. Well, so do I. Clearly, the car had been seriously caned off-road to drive that much mud - and it was all the same mud, so it was obviously from the same activity - behind the arch liner. Remember that the clutch was also destroyed, sometime between me test-driving the car and the seller delivering it - I wonder if the two are related?

Anyway, as we were fitting the Accusump, we also changed the oil, as this didn't look like it had been done for a while and the importance of having the right tool for the job became very clear. The oil filter had been on the car for a while and wasn't moving for love nor money. There was no room for a strap wrench nor a screwdriver through the housing, so the solution was a chain wrench. For a brief moment, it looked like even this wouldn't work and would just shred the housing but eventually it let go.

The sump plug was a similar story - someone in the past had obviously not had the right tools, as the edges were well

on the way to being rounded off. I knew straight away that a spanner wouldn't do it and not even an impact socket on a 1/2in drive would do the trick.

In the end, I had to set my impact gun to its lowest setting and 'rattled' it loose. Once it had broken the grip it was fine and went back in fine but just goes to show how important the right gear for the job is. Same goes for the oil - we used Morris Multigrade, fully synthetic 5W40. It's the high performance road/motorsport oil from the company that supplies the Drive DMACK Fiesta Trophy with all its fluids, so proper gear.



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COSTS

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Airtec front-mounted intercooler
£280

CHRIS POLLITT
MONDEO ST TDCI

BEST BIT:

Getting some miles under its belt and enjoying fast yet inexpensive motoring

WORST BIT:

Smashing the living crap out of the stock alloys. Stupid M60

GOING FLAT OUT

The ST TDCi had been in my physical possession for no longer than 45 minutes when the M60 decided to give it a slap. The slap came via the god almighty smash and bang that shocked my girlfriend and me greatly. Yes, I'd driven it through the Grand Canyon, or a pothole – the difference in size, scale and severity is negligible.

After pulling over to check what percentage of car I had left, it appeared that I seemed to be in luck. There was no visible damage, the wheels while horrifically corroded (nice work Ford) were still circular in nature and when back on the road, the steering wheel seemed to correspond with the direction in which I wanted to travel. Happy days, I'd gotten away with it.

As it's pantomime season, a hearty OH NO I DIDN'T seems apt. Driving it home from work two days later, still under the impression that all was well, I noticed a new and unwelcome insistence from the car to now pull to the left. Once again, and being somewhat aware of the Mk3 Mondeo's propensity to snap coil springs, I pulled over for further inspection. Nope, all was well. Odd.

On Tuesday morning though, back at chez Pollitt, all became clear care of three flat tyres and two cracked alloys – arse. With limited time on my hands, I called a mobile mechanic – the brilliantly named Frazer Nash (no, really) – who swapped the Bola B10s from the Focus ST onto the Mondeo as a temporary measure – I needed the MPG's of the Mondy over the speed of the Focus.

They're a bit of a tight fit on the back, but they do the job and I'm now mobile again. However, the currently garage-bound ST isn't, so I needed to get another set of rims, sharpish.

Luckily for me, Chris Cook at Wolfrace came up trumps with a gorgeous set of 19 x 8.5 rims that will suit the Mondeo down to the ground. As I type, I'm waiting on a set of rubber before I can get them fitted, which is frustrating as I really can't wait to

see them on the car. The somewhat comical name of 'Assassin' might seem a bit much, but in reality, the wheels are killer! The multi-spoke design with a slight dish and lots of sudden edges should suit the Mondeo well, all I have to do now is not bounce them through a pothole. More on the rims next month though, when they should be on the car.

In other news, I also shouted up a big ol' front-mount intercooler from the lads at Airtec. They know their onions when it comes to this kind of thing, so they were an obvious choice. At over three times the size of the standard part, it should make a hell of a difference. Plus, it didn't hurt my wallet at just £280. Again though, more on that next month when it's fitted.





DAN WOODROW F4 TEAM BOSS

BEST BIT:

Being quickest through the speed traps and the 12th place!

WORST BIT:

Not having another test day on the Friday, which would have given us more time

23 Racing returned to the track in the team's all-new F4 (Formula 4) car during the Easter weekend at Oulton Park. The F4 car is powered with the same engine Mk6 Fiesta STs and Ford Focuses use – the racy Ford Duratec 2.0 engine, which in our case has a specially modified ECU and wiring loom. The loom has the same basis as the

standard item but has important sensors to measure the dampers and other racing attributes. The engine produces 180bhp, which is in a car that weighs under 600kg with driver sat in it!

The team, 23 Racing, is headed by Yorkshireman Dan Woodrow, who himself is a Ford man through and through, having owned many Mk6s over the last few years. Most recently two Zetec Ss – one a 30th anniversary and another a slightly modified version. His current car is a Mondeo, which is ideal for towing purposes and transporting his race go-kart. He is currently also rebuilding – from the ground up – a Mk6 Fiesta ST, which has been lightened and fully stripped back.

The Championship that 23 Racing compete in is called the 'DUO BRDC F4 Championship', which supports the British GT Championship. The Championship can be found live on Motors TV – the calendar can be found on the series website. 23 Racing had signed their driver only a few weeks before the season was due to start, his name is James Reveler from Uxbridge and he comes with the right credentials, mainly because he won the Rotax Max Kent Cup (Go-karting) in 2014. He's only been racing three years so this season is a big step for James.

Many people think that racing this type of car is out of their reach, but 23 Racing have different opinions and really allow the 'average Joe' the opportunity to compete within their team. Team boss, Dan





Friday and really didn't know what to expect from the car and engine, being a day behind also didn't help but the Duratec worked great first time out!" explained Dan. Friday was a very wet day so the team didn't have a great day getting to know the new car.

Saturday was a lovely sunny day, which was a total contrast to Friday testing. James knew he could get down to business and really start to get a feel for the car and the track. They ended the qualifying session more than 5 seconds from the pace, though to put that in perspective, it's worth noting James had had less than two hours in the car before he arrived at Oulton Park. Some of the lads running in other cars have had around five or eight days pre-season practice. James started race 1 from the back but his lap times got faster and faster so he was closing the gap on the drivers further up the grid. He finished race 1 building confidence and getting faster.

Monday race day (usually a Sunday but that weekend was the main race day of the weekend) came faster than they thought and by the time the team had checked the car over it was time to line up for race 2 of the weekend. In race 2, James managed to finish 17th, which was a great improvement and his lap time dropped to 4 seconds from the leaders. The Ford Duratec engine was also quite high on the speed traps.

Race 3 of the weekend was another learning curve but James finished the race and had closed the gap on the guys at the front to 3 seconds, which is very respectable looking at the bigger picture – including the fact that James had never been to or seen Oulton Park before Friday! Team boss Dan was very happy and he and his engineers had showed they could tweak the car and extract more and more speed from both it and the Duratec engine. The next race weekend is the weekend of the 2nd and 3rd of May 2016 at Rockingham Speedway in Corby.

23 Racing welcomed a small sponsor the week before the meeting, a local cleaning company, Andy from EcoClean in York, who had agreed to have a small logo on the rear wing. You can follow James's and 23 Racings progress on twitter @23racinguk, "23racing" on Facebook or the website www.23racing.co.uk.

Woodrow, really likes to help semi-funded drivers or want-to-be race drivers. And with all his press, media and marketing skills, he can help them get the right backing to be able to compete at a level that most young lads who have aspirations of F1 would normally struggle to achieve. Dan has a keen eye in what to look for in future drivers. He said "we hope to run a couple of track days later in the year alongside Performance Ford and I'm sure there will be a couple, if not more, who have the potential to come and race with us in 2016!" Wouldn't 2016 be a great year if a reader of this magazine could come and compete, driving our all new F4 car powered by a Ford engine!

The F4 season started at Oulton Park in Cheshire, which is a Motorsport vision (MSV) owned track. Jonathan Palmer heads the group, which also owns Brands Hatch, Cadwell Park and Bedford Autodrome. A typical race weekend starts with testing on a Friday, which allows the drivers and team to really dial the car into the track and conditions of that weekend. Unusually though, this round started on Wednesday, when the 23 Racing mechanics were still installing their newly tuned two-litre Duratec into the car. "While some of the lads competing were out testing on Wednesday, we were in the workshop putting our engine in and making sure she worked! We didn't get to the track until



COSTS

Buying the damn thing
£510

Insuring the damn thing
£200

Buying beer to drown out
what I've done
£10



CHRIS POLLITT ESCORT GTI

BEST BIT:

It's an Escort GTi, you tell me

WORST BIT:

It's. An. Escort. GTi

There's an evil place on the internet and it's called eBay. I know that, because a week ago I didn't need or particularly want another car, yet, care of said website, I now seem to have one. An Escort no less, in GTi flavour.

It's no secret that the Escort GTi is the least deserving car in motoring history to ever wear that badge. I still don't know why they called it that. Anyway, Ford did and the result was a warm hatch with some side skirts, some leather and some nice (for the '90s) alloys. About three survive today, and as fate would have it, I own one of them.

It set me back £510, which isn't too bad considering it has loads of MOT, a current owner who has loved it for half a decade, a K&N filter (that's another 250bhp, right?) and a stainless exhaust. It's sort of on its way to being something respectable. I'll get it fully respectable in due time, though quite how, I don't know.

The obvious option would be to go down the track car route, but seeing as we have the Puma, that might be overkill. Maybe I could re-live the '90s and fit neons, TSW Venoms and a Peco Big Bore 4? Who knows? I'll ponder on that over the next few weeks and see what I come up with.

As I've not yet picked it up, I can't really say much else. The only thing of note is the insurance, and while I'm not one for gushing reviews, I can't ignore the fact that when it came to insuring this, Jude at Adrian Flux came up trumps. After a quick chat it was insured, fully comp, for £200, which is a bargain. Then I got a quote on the Mondeo - £400, fully comp. After a weekend of being frustrated by silly quotes or insurance agents talking to me like I'd pissed on their chips at the mere mention of modifications, it was a great result. Gratuitous plug ends.

Right, I'm going to have a sit down and figure out what the hell I'm going to do with this Escort.





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PERFORMANCE FORD

NEXT MONTH



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 No, really

AN ESCORT VAN
 Possibly

A Fiesta of some description,
 possibly a purple one

What goes into making a
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Intercooler fitting guide

Plus lots, lots more...

*Contents subject to the Editor changing his mind at the last minute



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LICK MY BATTERY

Hmmm. This is just one of a range of peculiarly named garage consumables from CarPlan, but it could prove useful to have around. Simply, it's a spray that cleans grime and neutralises corrosive deposits from your battery terminals, then sets to a gel-like blue goo that keeps water and further corrosion out, and ensures a good connection. I've tried it, and it's simple to use – although you have to be careful to prevent it going everywhere – and seems to do what it suggests. The only downside I can see is ... well, have you ever thought to yourself,

"I really MUST go down to the car accessory shop and buy a can of battery terminal cleaner?" Most garages and workshops will have a small, cheap, ancient tub of Vaseline at the back of a dusty shelf that gets used on the odd occasion you have to check your battery terminals, and lasts for years. Is this stuff the answer to a question that nobody has asked? Either way, if you simply have to have every single product under the sun for your car care regime, here's the latest must-have addition.

Cost: £5.99

Contact: www.carplan.co.uk

"Does its job, but do you really need it?"

PERFORMANCEFORD RATING





VALET PRO GLASS CLEANER

This stuff is simply a glass cleaner in a trigger spray bottle, much like most other glass cleaners. This one, however, is from Valet Pro, a company that provides valeting materials to the professional. Whilst the auto enthusiast might enjoy spending a whole afternoon cleaning and detailing their car until it's surgically spotless, time is money to a professional, and they want maximum results with minimum time and money expenditure, so you'd expect this stuff to do a workman's job, and quickly. It does. Spray it on, wipe it off with a microfibre and the job's a good'un. Clear glass, minimal smearing and no residual chemical or alcohol stink. It lifted off sap, bird cack and even the residue left by long-gone stickers and tax disc holders with little fuss. The only area I had to go over again was the heating element on the rear windscreen – crud seems to gather along the strips and set solid. When I'd finished, it had transformed the car from slightly neglected to showroom fresh. And I'm not sure what more you can ask of a glass cleaner...

Cost: £4.99

Contact: www.valetpro.eu



“Does its job, does it well!”

PERFORMANCEFORD RATING



SEALEY 12-IN-1 PRECISION EXTENDABLE SCREWDRIVER WITH LED LIGHT

First of all – what a mouthful! They should call these things something much easier, although something with 12 functions could have an even longer name...!

This little multi-tool is made for getting into tight (and potentially dark) places; complete with a powerful little LED to light up nooks and crannies. There are six double-ended bits, housed on the handle, and a pocket clip – should you need it.

It feels strong enough, and looks like it would do the trick. However, when put to use it didn't quite live up to the quality we expect from Sealey. The bit itself (the Philips head), when applied to a

stubborn screw, but with little torque, completely mashed and we were unable to use it again.

The LED light was very handy and helped when tightening a loose speaker, but unfortunately the button to turn it on is too exposed and caused the batteries to go flat when it was put in a rucksack.

To its credit, it did mend everything we used it on, and it's great value – however, we're sure something else on their product list might be a better option.

For small jobs and hard-to-get-to areas, it does the trick, but we feel it's worth investing a bit more money into something a bit stronger.

Cost: Around £7

Contact: www.sealey.co.uk

“Good idea, not the best quality”

PERFORMANCEFORD RATING





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JIM BLACKSTOCK

Does the name Jim Blackstock ring any bells? No? You fool! How about Revs, Max Power, Fast Car, Cosworth Racing and the World Rally Championship? Well, Jim's been there, done that and more than likely has the t-shirt!

CHRIS POLLITT & VARIOUS



Jim Blackstock has been an integral part of the Performance Ford team since we re-launched the magazine earlier in the year. We were keen to have him on board because not only is he a master at crafting magazine content, he's also a dab hand on the spanners, unlike our Ed, who is scared of them (you know I read this, right? Ed).

He also once begrudgingly gave away a Sierra RS Cosworth, he lost a wheel from an Escort, he painted a Mk2 Escort Harrier orange, he worked at Cosworth, he travelled the globe as part of the World Rally Championship and much, much more. He's not just another PF staffer, he's a deserving Ford hero...

SO, FORDS AND JIM. WHERE DID IT ALL START?

Pretty much when I got involved in magazines. I went through a bit of an Alfa Romeo phase when I was at Uni (studying engineering) but when I left, I kind of lucked-in to a job in publishing and my first assignment on the magazine was being involved in an Escort RS Turbo group test at Bruntingthorpe. My first week and I'm passenger in a Cosworth-powered, rear-wheel-drive Mk4 Escort, bouncing down the runway at Bruntingthorpe at 170mph in the pouring rain. Talk about a baptism of fire...

TELL US ABOUT SOME OF THE OTHER CAR MAGAZINES YOU WORKED ON?

I started on Fast Car in 1991, when the magazine was looking for a junior writer with a solid grasp of cars but no real experience of working on magazines. I joined as Features Editor, which meant bottom of the food chain but it was a magazine I loved - I'd read it since it started in 1987 and had already learned a huge amount from people like David Vizard, Dave Walker and Roland Hayes. It was while I was on Fast Car that I got involved in rallying, co-driving for Richard Banks in his Mazda rotary-powered Mk2 Escort for a feature and carrying on with him once the bug bit.

Two years later, in 1993, when Max Power was being put together, I was asked to join the team by Editor, Graham Steed,

as Technical Editor with responsibility for the complete technical accuracy of the magazine. That was a feat in itself, as none of the other staff members, with the exception of Vicki Butler-Henderson, knew the first thing about cars. Those were good days - magazines were about readers, not figures and we were able to do virtually whatever we wanted, as long as enough people bought it every month. And they did.

When Graham was promoted to Publisher, I took over as Editor but by this time, Max had become more of a lifestyle and soft-porn title and not a car magazine. I'm a car bloke through and through, so was very lucky when another opportunity arose.

FROM ALL THAT, IT'S OUR UNDERSTANDING YOU WERE THE MAN THAT STARTED REVS MAGAZINE?

That's right - that was the next opportunity for me. Like I say, I enjoyed working on car magazines and as Max (as well as the competition) had moved away from that, we felt there was a gap for a magazine about modifying cars - Max had become all about the end result and nothing about how to get there - the destination, if you like. While the vision for Revs was the journey. We spent a year researching it - this was at the time that things were gradually becoming more of a business and less of a product - and eventually launched in 1996. The magazine went down well - I believe Ed Pollitt was a keen reader (keen? I still have them all! Ed) - and although the outright numbers were far lower than Max Power, the readership was actually much more hardcore and loyal - the sales figures didn't jump around massively depending on what bit of cheap shite was glued to the front of the magazine - the readers liked the magazine for its content, not the child-like freebies the others needed.

WHAT WERE SOME OF THE BEST FORDS YOU SAW WHILE WORKING ON THOSE TITLES?

The Escort rally car was always a good one - it was a temperamental bitch at best - massive amounts of heat generated, getting fuel into it was a major issue and we never did get the ballistic blanket we should have had around the bellhousing (the engine ran to 9,500rpm). However, on the occasion it ran properly, the only things quicker than us were Cossies, with four-wheel-drive.

I loved the three-door Cossie that we bought and gave away - yes, GAVE AWAY - when Revs launched. That was one of the cleanest three-doors I have ever seen and I was lucky enough to blat it round Silverstone at Trax that year. I had to stop though, as it was all starting to be a bit too much fun.

We also built a Mk2 Harrier as a project car, painted it orange and gave that away. It looked great but I have no idea what happened to it after that. I had a Mk2 Capri racer that I used on the road for a while – bought it from a mate of the editor of Fast Car and he'd built it as a circuit racer. It was crazy – solid suspension, a seating position so low and for someone with legs so much longer than mine that I needed two of my mum's best cushions to be able to get to the pedals AND see out of it but it sounded amazing. It was a 3.0S with Cherry Bomb silencers that had long-since lost their packing, so basically, open headers. It sounded like the world was ending...

AFTER MAGAZINES, WHAT DID YOU DO TO PRESERVE THE FORD LINK?

Well, direct links with the Blue Oval were severed for a few years – I looked after the Press and PR for the Hyundai World Rally Team when it joined the WRC in 1999 and one of the drivers was Alister McRae, when Colin drove for Ford. I moved from there to Mitsubishi but when they cancelled their rally programme in early 2003, I was faced with the choice of moving jobs or moving to Frankfurt. The latter wasn't feasible but I was lucky enough to get a job at Cosworth Racing (as was, and owned by Ford at the time) looking after the press and PR there. So, for the first time, I was a full-time Ford employee...

A host of Ford company cars, Formula One engines being tested just yards from my desk, Focus WRC engines being built the other side of the road and a fledgling programme of bolt-on performance parts for road cars – that was a really interesting time. Sadly, Ford sold Cosworth Racing along with Jaguar Racing and Pi Research at the end of 2004 and my budget – and role – disappeared overnight. So I took the 'freelance' plunge and have been doing that ever since.

WHAT'S BEEN THE HIGHLIGHT OF YOUR CAREER SO FAR?

Difficult to say – I'm lucky enough to have been involved in so many amazing situations. The first issue of Revs hitting the shelves and going down really well was probably the best – I'd like to say it was all my own work but that would be incredibly unfair to the other people who made it possible and without whom it would never have happened. Sounds a bit like an Oscars speech, now, eh?

Being at Cosworth and being in Mexico when the Ford team won the rally with Markko Martin was also quite special, as I was helping look after a group of journalists from North America as Ford Racing was launching the road car performance programme.

ANY EXCITING TALES FROM THE WRC DAYS?

Loads but not many I can talk about. The post-rally party in Portugal in 1999, in the River Café in Oporto,

where Colin won the rally outright and Alister the two wheel-drive category and the pair of them holding a rudimentary 'dance-off' on the incredibly old, antique oak bar?

Being swept back to the Mitsubishi service area in Corsica by a journalist who was listening in on the TV crews' radio conversations and being told; "Tommi [Makinen] has gone off, the car is on fire, upside down and Risto [Mannisenmaki, co-driver] is trapped inside". The reality was nowhere near that but still, a fairly hairy moment.

Or perhaps surviving the Korean drinking culture after both Hyundai Accent World Rally Cars finished their first rally – Rally Sweden, in 2000. The culture means the most senior person – the highest-ranking member of the Hyundai Motor Company – chooses his drink first and everyone has the same. Down in one. Then the next senior, and so on, until you get to the bottom of the ladder and everyone has had a go. There were nine of us around the table and the drink of choice was Swedish white wine. I ended up on the outside of two bottles of the stuff in the space of half an hour. I'm only here today thanks to the effectiveness of the gag reflex...

WHAT'S BEEN THE MOST SIGNIFICANT FORD-RELATED PROJECT YOU'VE EVER WORKED ON?

I'd have to say the d-Power programme when I was at Cosworth. The company developed three levels of tune for the Duratec engine, using essentially bolt-on components and they worked incredibly well. Ford Racing picked them up and marketed them, which meant they sold well. At the same time, we embarked on a branding exercise in the US, since few people over there knew of Cosworth, even though we did the engines for the Champ Car series. Working with a really good creative agency, we came up with a superb range of adverts for different markets – the technological and automotive were a range of athletes but for the road car market, we had a model holding her norks with the tag-line 'Big Boys Toys'. We also had her holding her butt with the line 'Hold tight boys'. Took some persuading to get them past the Cosworth board and into the American magazines but they worked pretty well...

ANYTHING YOU'VE NOT YET TICKED OFF THE LIST?

Not really – I'm incredibly lucky to have had some amazing jobs and worked with some amazing people. Maybe the one thing I would like is to realise my car dream – a '67 Fastback Mustang – but, thanks to Eleanor, that's never going to happen...

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Want to be in the mag?

Tell us (and pics always help) what the best old mod was that now makes you cringe?



Joshua · [Profile] · The wish list stickers from Halford
Like · Reply · 14 hrs

Mark · [Profile] · Dimma stick on fuel cap... it was completely acceptable, quality made and an Ford RS essential. But a stick on fuel cap!!!!... yep I had one lol
Like · Reply · 13 hrs

Jamie Nyks · [Profile] · Chrome M3 mirrors. This is the only photo I have of my old RS and the mirrors spoil it 😞



Zack · [Profile] · I quite liked the neons on my Fiesta back in the day and I still see some rocking them now but I can't say they were the 'best'. The fact you can turn them on or off when you please is why I thought they were so great. When people dislike them and claim they 'ruin' the car - look at the car again when they're turned off! Simple.



John · [Profile] · My XPO from many years ago. 3 spoke alloys??? What was I thinking?



Grantley · [Profile] · Cosworth bonnet vents in any car other than a Cossah.



Rob · [Profile] · 9 hrs · 🌐

Almera front bumper, rear end swap, WRC spoiler, 19" wheels, flip paint & huge boot build. 😂
Had to do something to save her, same car is now my profile pic.



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PARTS



ST180

ST300 X27 Hybrid Turbo Upgrade

£3895.96

Peak power: 297.1bhp

Peak Torque: 382.1Nm

R-Sport Garret Core Stage 3 Intercooler	£545.00
R-Sport Hard Pipe Underboost Kit	£135.00
Pumaspeed Quickspool Tubular Manifold	£625.99
MAXD Stage 1 Tuning Box	£399.95
MAXD Stage 2 Tuning Box	£459.00
Milltek Decat Downpipe	£211.99
Milltek Hi Flow Sport Cat Downpipe	£414.36
Milltek Non Resonated Cat Back	£448.00



1.0 Ecoboost

ZS170 Power Upgrade

£1999.99

Peak Power: 167bhp

Peak Torque 210.3Nm

Pumaspeed 1.0 Induction Kit	£145.99
MAXD Stage 1+2 Tuning Box	£399.95
Milltek Decat Downpipe	£202.80
Milltek Hi Flow Sports Cat Downpipe	£505.50
Milltek Non Resonated Cat Back Exhaust	£448.56



ST225

Stage 1 intercooler and remap package

£525.00

Up to 275bhp

Torque: 450Nm

R-Sport Stage 1 Intercooler	£250.00
Pumaspeed Ultimate CAIS	£375.00
Pumaspeed Remap	£289.96
Pumaspeed Tapered Inlet Plenum	£399.00
Milltek 3 Inch Hi-Flow Downpipe	£237.00
Milltek Decat Pipe	£124.74
Milltek Hi-Flow Sports Cat	£548.86
Milltek non-res Cat Back	£498.96
Milltek Ultimate Cat Back	£479.99



ST250

ST295 Power Upgrade

£1995.00

Peak Power: 295bhp

Peak Torque: 350Nm

R-Sport Stage 3 Intercooler	£349.00
MAXD Stage 1 Tuning Box	£399.00
MAXD Stage 2 Tuning Box	£425.00
Milltek Decat Downpipe	£280.00
Milltek Sports Cat Downpipe	£469.99
Milltek non-res Cat Back	£679.99



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- Adjustable spring platform
- Height adjustable bottom mount
- Bearing mounted spring platforms
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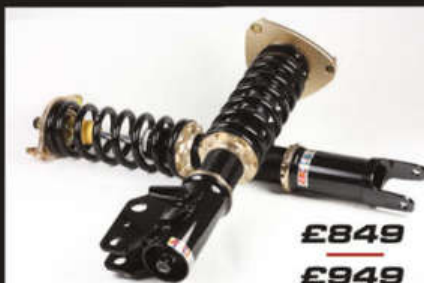
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